ANNUAL REPORT
1998-99

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

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The Louisiana Department of Wildlife and Fisheries is charged with the responsibility of managing Louisiana's abundant natural resources . . .

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OFFICE OF SECRETARY

The Office of Secretary is administered by the Department's chief administrative officer, who oversees all scientific operations as organized by the Office of Wildlife and the Office of Fisheries. The Secretary also has ultimate authority over the operation of the Department's fiscal and business matters as administered by the Office of Management and Finance. Support operations of the Department report directly to the Secretary. These include two divisions — Enforcement, and Information and Education — and two promotional bodies — the Seafood Promotion and Marketing Board and the Fur and Alligator Advisory Council (see Fur and Refuge Division) — as well as the Department's Legal Section.

ENFORCEMENT DIVISION

The Enforcement Division is responsible for enforcing laws enacted by the Louisiana Legislature relative to fish and wildlife resources and boating safety regulations, as well as federal regulations pertaining to migratory birds and endangered species.

Agents of the Enforcement Division issued 18,579 citations during this fiscal year. In addition, officers worked with other law enforcement agencies to provide public safety and assistance during local emergency situations.

In keeping with the Division's standard approach, special emphasis was placed on enforcement of deer and waterfowl regulations in 1998-99. Both species have long been the most favored for hunting in the state. Hunter participation in waterfowl hunting has increased due to more liberal bag limits (6 ducks and 10 geese) and longer season length (60 days) as waterfowl numbers increase.

Boating Law Enforcement was strengthened in the Enforcement Division during fiscal year 1998-99, expanding from enforcing safety on the water and encouraging proper boat handling to conducting boater education classes for the boating public in Louisiana.

The Wildlife and Fisheries Law Enforcement Academy maintained its high standards. Because of the level of professionalism and preparedness offered by the Louisiana program it is generally considered one of the best of its kind in the nation. Following training, many officers are organized into special force units. Each is dedicated to a particular enforcement issue.

Deer

Deer hunters numbered more than 180,000 and harvested an estimated 234,700 deer. Enforcement agents observed better compliance among hunters this fiscal year. Deer decoys were used with success in cases related to night hunting, shooting from public highways, and incidental poaching.

Waterfowl

The waterfowl enforcement training course instituted in 1993 continued as a standard entry in agent training. It provides specialized training in waterfowl identification and enforcement concerns in the southwest marshes and other waterfowl habitat. This and other measures have enhanced effectiveness of enforcement of waterfowl regulations. National migratory bird managers instituted protective measures for waterfowl in 1986. It is apparent that public education concerning depleted waterfowl populations and improved hunter compliance have worked hand in hand. Hunter ethics are improving as a result. Numbers of waterfowl actually migrating to this state for 1998-99 winter were at high levels. The U.S. Fish and Wildlife Service announced that according to the fall flight index numbers of birds along the migratory route were increased over last year's numbers.

Boating Law Enforcement

In fiscal year 1998-99, the Enforcement Division incorporated traditional law enforcement with

proactive boating education. Boating education classes were designed to teach safety and responsibility on the water. More than 3,000 Louisiana citizens completed 80 boater education classes taught by wildlife agents and trained volunteers. Legislation requiring mandatory boater education will be sought in the future and if enacted will induce greater participation in education courses.

Enforcement of boating regulations remained a priority and more than 5,400 boating violation citations were issued during fiscal year 1998-99. Emphasis remained on the alcohol impaired boat operator. Boating under the influence (BUI) detection continued to improve. In addition to enforcing BUI laws, wildlife agents strictly enforced careless and reckless operation statutes, concentrating on the increasing number of personal watercraft.

Search and Rescue operations saved lives and minimized human suffering in unfortunate accidents. Agents are currently working to improve communications and reduce response time to arrival at areas of operation.

Training Program

Cadets receive a minimum of 25 weeks of training. The Wildlife and Fisheries Law Enforcement Academy graduated 26 new officers in the 1998-99 fiscal year. A training facility constructed at Wildlife and Fisheries headquarters in Baton Rouge in June 1993 now provides classrooms and lodging facilities for both cadets and in service officers returning for additional training.

Most officers are certified in ten areas in courses conducted by experts from various agencies: standardized field sobriety testing (LDWF), chemical testing for intoxication (State Police), DWI detection (Highway Safety Division), tactical police driving (Baton Rouge City Police), Louisiana safe drivers' course (Department of Public Safety), basic marine theft (Mississippi Fish and Game), basic defensive tactics and collapsible baton techniques (LDWF), wildlife agents aquatic survival (LDWF), peace officers standard training (Louisiana State Police), and Chemical Weapon Indoctrination and Certification (LDWF).

The Division makes advanced training available to selected officers in such areas as drug identification in the field, marine theft, boating accident investigation, and diving/underwater law enforcement.

Special Force Units

The Oyster Strike Force (established in 1990) and Salt Water Enforcement Patrol (SWEP, established in 1983) continued to successfully enforce oyster and saltwater fishing regulations. These units work with the Division's pilot-agent and airplane to monitor commercial and recreational fishing activity along Louisiana's coastline. SWEP officers were also involved in several search and rescue operations.

The Covert Unit continued to develop substantial cases involving illegal sale and purchase of game, fish and protected species. Working in conjunction with the Special Investigations Unit, they have focused on illegal sales of spotted seatrout and red drum and have initiated studies to create technology which will allow officers to reliably identify different fish species from filets and fish tissue samples taken from suspected violators.

Members of the Wildlife Enforcement Dive Team (begun in 1990) who had achieved Dive Master Certification sought more advanced training in 1998-99. The team was expanded to 15 members.

The State Strike Force consists of two officers from each of the nine Enforcement regions and is designed to provide immediate, specialized additional manpower whenever and wherever needed. The Strike Force continued its concentration on commercial fishing violations, illegal interstate transport of commercial seafood products and theft of boats and marine equipment. Efforts resulted in better compliance with commercial regulations and the recovery of stolen boats and other property valued in thousands of dollars.

Louisiana Operation Game Thief, Inc., a program providing cash rewards to anyone reporting information which results in the arrests of wildlife violators, recorded more than 2,000 calls to its 24-hour, toll-free number. In fiscal year 1998-99, OGT paid over $9,000 in cash rewards to individuals who reported outdoor outlaws. This anti-poaching organization celebrated its 15-year anniversary in 1999 and has now paid in excess of $120,000 in rewards since July 1984.

INFORMATION AND EDUCATION DIVISION

The Information and Education Division has many functions all in regards to public information dissemination and educational outreach programs. The Division works to inform the public of Department research and resource management programs related to the numerous recreational and commercial activities in the state. The Division also provides diverse education opportunities pertaining to conservation of wildlife and fisheries resources and outdoor recreation skills.

The Division is divided into two sections: the Information Section and the Education Section.

INFORMATION

The Information Section carries out its functions through various public information channels including the bimonthly production of the Louisiana Conservationist magazine, a bi weekly distribution of news releases, news features and newsletters, and a weekly radio show. Video is used to inform and educate the public in conjunction with other department programs, and public events are often utilized as a means of reaching out to and working with the public.

Section activities also include professional guidance and assistance to other divisions with writing editorials and designing and publishing various Department documents.

Louisiana Conservationist Magazine

The *Louisiana Conservationist* is the state's premier magazine for outdoor activities with a focus on programs and projects of the Department of Wildlife and Fisheries. Throughout its 76-year history, its mission to keep the public informed on outdoor-related issues has never wavered. The 36-page, full-color magazine is published six times a year, including the annual outdoor calendar published as the January/February issue. The wall calendar features beautiful outdoor photography and provides information on season openings and closings, species' migration and breeding times, natural history events, tournaments and holidays.

The magazine is funded entirely from circulation and merchandising revenue. Current circulation averages 30,000 subscribers reaching across the nation with a small percentage overseas. Several aggressive magazine subscription promotions continued this fiscal year, including piggy-back mail outs accompanying motorboat registration renewals, complimentary subscriptions to Louisiana schools and an offer for expired subscribers to re-subscribe at a special discount.

Merchandising Unit

This unit was established to provide a supplementary source of revenue for the Louisiana Conservationist budget through the sale of merchandise advertised in the magazine. The selection of items sold is based on promoting Louisiana, the department and outdoor recreation. In addition to merchandise selected for sale through this unit, it also handled sales and distribution of publications sold by other divisions and sections.

News and Media Service

A total of 327 news articles (314 releases and 13 features) were made available to the public during fiscal year 1998-99 along with a regular biweekly newsletter. News covered all Department activities including wildlife and fisheries research and management, land management and purchases, enforcement, outdoor education, regulatory action, seasons, law making, budget management, and information regarding native Louisiana species.

News was distributed through two standard avenues. A weekly packet was mailed to more than 450 media representatives, including television stations, radio stations, newspapers and outdoor periodicals in the state. These releases were then formatted as a newsletter and mailed to 1,100 interested groups and individuals, including commercial fishermen, sports organizations, citizen conservation groups, scientists with other resource units, public officials, universities, and Department field locations.

Publications

The Information Section is responsible for publishing all Department regulation pamphlets. These include two large printings of 400,000 each of the 1998-99 hunting regulations pamphlet and the 1999 fishing regulations pamphlet. Other regulation pamphlets produced on a smaller scale included the waterfowl hunting, turkey hunting, trapping and commercial fishing regulations. All

of these publications were distributed throughout the state through local sheriffs' offices and Department field locations.

Other publications designed and published through the Information Section include brochures for programs such as Becoming An Outdoors Woman, Families Understanding Nature, Hands-On Outdoor Training, Booker Fowler Fish Hatchery and many more.

Broadcast

The weekly radio broadcast show titled "Louisiana Wild" continued to air. The one hour show covers a variety of topics from new legislation to seasonal fishing reports and hunting season outlooks. The Information staff hosts the show with a variety of guest ranging from department enforcement officers and field biologist to independent sportsmen and other government agency staff members.

National Hunting & Fishing Day

The Information Section holds the responsibility for coordinating and executing National Hunting and Fishing Day in Baton Rouge, one of the largest celebrations across the state. It is a national event, celebrated by all 50 states held each year on the fourth Saturday in September. Louisiana's events are sponsored by the Department in five locations statewide and offers families the chance to spend the day outside, experiencing activities like archery, boating, fishing, skeet shooting, muzzle-loading and many other hands-on activities. It also offers educational opportunities with live animals and educational exhibits from various state agencies, conservation organizations and local businesses. In 1998 public attendance in Baton Rouge exceeded 3,000. The event is free to the public.

EDUCATION

The Education Section has as its focus four education programs: Hunter Education, Aquatic Education, Wildlife Education and Special Programs. These cover species and habitat management, ethics in the woods, safety, regulatory measures, and sporting skills. In addition, they provide learning opportunities for many novice outdoor recreationists and advanced training for the committed outdoor enthusiast. Special Programs includes offerings for specific targeted audiences, such as workshops, short courses and classes for students, teachers, women and families. Department educators prepared and presented a variety of education programs across the state. A great deal of effort was dedicated to recruiting and training a corps of volunteers who in turn offer instruction throughout the year at many locations. Volunteer instructors include teachers, youth group leaders, sport group organizers, and other interested adults.

Hunter Education Program

State law requires anyone born on or after September 1, 1969, to successfully complete a hunter education course before purchasing a hunting license. The primary focus of the Hunter Education Program is certification of young hunters as safe and responsible sportsmen. During the year, hunter education staff sponsors and assists over 1,000 volunteer instructors in conducting classes for many civic and sportsman groups, schools and sheriffs' offices. A total of 467 student courses were conducted resulting in the certification of 20,588 students.

Time and expertise of volunteer instructors dedicated to teach the basic certification course serves as in-kind state match for federal grant funds. This satisfies the federal eligibility requirement for Louisiana Department of Wildlife and Fisheries to receive funding for the Hunter Education Program.

Hunter education staff conducted instructor certification courses certifying 129 new instructors. Also held was an advanced volunteer instructor workshop for 133 participants at Camp Grant Walker in Pollock. The purpose of the workshop was to update volunteer instructors on new methods of teaching and techniques. The sessions included ethical trapping, survival, snake identification, conservation and knife making. New advanced short courses are offered each year.

Hunter Education staff members are responsible for the construction and operation of public shooting ranges. We manage public shooting facilities at Bodcau, Sherburne, and Pearl River Wildlife Management Areas, Natchitoches shooting range and Woodworth Outdoor Education Center.

A new environmental education project was initiated and funded through a Federal Aid Grant from U.S. Fish and Wildlife Services. The project consists of a 150-seat classroom, a shotgun shoot-

ing facility for training of hunter education students and a 3-D archery range. We constructed the facility on the Waddill Urban Refuge in East Baton Rouge Parish. Total cost of the project was $230,000.

Youth Hunter Education Challenge (YHEC)
Again, Louisiana's youth did exceptionally well in outdoor skills in this national hunting skills competition. The Youth Challenge begins at the local level when qualified students tested their skills in riflery, archery, shotgun and muzzleloader shooting, orienteering, wildlife species identification, and written mastery of the material in local competitions. Then, two junior and two senior teams were selected to compete in the national competition sponsored by the National Rifle Association. These teams placed high in the competition held in Pennsylvania.

Bowhunter Education
The demand for Bowhunter classes continues to grow. Staff and volunteer instructors conduct courses to provide this free service to the public. During this reporting period three Bowhunter instructor courses were conducted certifying 25 new instructors. There were 77 student courses conducted for the public certifying 2,256 individuals. Although the state mandates no certification requirements for bowhunting, several National Refuges have mandated bowhunter education as a prerequisite to hunting on their facility.

Hunting Accidents
There were 13 hunting accidents reported during the 1997-98 hunting season. The accidents consisted of four fatalities and nine non-fatal accidents. Since mandatory hunter education began in 1985, the accident rate has declined significantly.

Aquatic Education Program
The Aquatic Education Program was designed to acquaint youth and adults with the sport of fishing, management of fish species, and the science of Louisiana's diverse aquatic habitats.

The education staff made the Aquatic Education program materials available to public and private schools through workshops, education conferences and personal contact.

The programs available are "Let's Go Fishing" for Elementary schools. This program consists of an activity book developed by the Department that is provided free of charge to Louisiana teachers. The activities create an interest in the sport of fishing and acquaint students with food chains, regulations, management and recreational fishing. The Middle school program centers on resource management, wetlands, and fishing activities. We are developing additional program materials.

A volunteer force and employees of the Department presented public Fishing Clinics. The clinics consisted of three to six hours of instruction covering the use of equipment, fish identification, knots, ethics and water safety. An optional portion of a fishing clinic provided actual fishing opportunities for the participants. The Department furnished rod and reels/cane poles, hooks, and sinkers for the clinics. Some 400 Louisiana citizens participated in the program.

Disabled fishing clinics were conducted statewide for children enrolled in disabled programs within the different parish school systems. This served as an opportunity to introduce fishing to those less fortunate and provided an activity to allow these individuals to get outdoors. Instructors gave a little classroom instruction with a greater emphasis placed on actual fishing.

The Department worked with Department of Education developing workshops for educators that meet workshop requirements for teacher inservice training.

The Department of Wildlife and Fisheries, Louisiana State University, Cooperative Extension Service and LSU Sea Grant College program conducted a summer wetland ecology camp for senior 4-H members entitled "Marsh Maneuvers". The participants were selected by LSU from senior 4-H members across the state. Education activities at the St. Amant Marine Research Lab on Grand Terre Island focused on developing an understanding of the importance of wetlands, relationships between habitat types and wildlife, the need for wetlands, the differences between fresh and saline marshes, the sport fishing opportunities found in coastal Louisiana. Other student activities introduced the students to decision making exercises in conserving coastal wetlands of Louisiana.

The camps were conducted at Department-owned

or other governmental agency facilities located along the coast of the state (e.g. Grand Isle Marine Lab, State Wildlife Refuge, LUMCUM facility at Fouchon).

A visitor center is located at the Booker Fowler Fish Hatchery. The Aquatic Education Program is responsible for the operation of the visitor center. It consist of an auditorium with several aquariums that depict various fisheries habitats and freshwater species that occur within the state. The auditorium has a seating capacity of 60 people. A full-time educator is stationed at the hatchery and conducts tours for school, civic, and other groups. An education program was developed that introduces teachers to the hatchery and how the agency manages fishing resources.

Wildlife Education Programs

Fifteen Wildlife Educators prepared and presented a variety of wildlife programs to grades K-12 in public and private schools, and youth and civic organizations. The programs developed by the educators were designed to educate the public about Louisiana's diverse wildlife resources and the Department's resource management activities. Educators also presented hunter safety programs at civic clubs, sportsman organizations and safety meetings. They attended several teacher conventions where they received training and materials as well as set up and manned displays promoting the Department's many education programs and activities. The demand for services, classroom presentations and teacher enrichment workshops continues to exceed the manpower capabilities of this section.

Project WILD (Wildlife in Learning Design)

is a national, award-winning conservation and environmental education program composed of instructional workshops and supplementary curriculum materials for kindergarten through high school teachers. These workshops are exciting, involving, productive, and professional experiences which fully prepare participants to teach the new material. Project WILD activity guides are provided to teachers who participate in Basic and Aquatic Project WILD workshops.

During 1998-99, 22 Basic WILD instructor workshops were held with 376 participants and 16 Aquatic WILD instructor workshops were held with 306 participants. Since May 1989, more than 9,000 educators have received Project WILD materials. As a result, Project WILD material is used by trained educators in providing wildlife and conservation education to an estimated 189,000 Louisiana students. Project WILD also certified eight new workshop facilitators to enhance the volunteer training capabilities of the program.

Special Programs

A number of new and ongoing programs played a major role in accomplishing the Education section's goal of providing new user groups with outdoor education opportunities.

HOOT (Hands On Outdoor Training) Camp

HOOT Camp is a weeklong resident environmental science and outdoor skills summer camp for boys and girls entering 6th, 7th or 8th grade. The environmental science concepts covered are linked to the Louisiana Science Curriculum Benchmarks established by the State Department of Education. Science teachers provide the environmental science instruction while the education staff provides the outdoor skill instruction. Four camps are offered during the year with 25 students per camp.

FUN (Families Understanding Nature) Camp

FUN Camp is a weekend adventure of outdoor fun for a single parent with their children. The participants can receive instruction and hands-on practice at various outdoor activities such as, rifle and shotgun shooting, archery, fishing, canoeing and camping taught by the education staff. The four camps conducted at the Department's Outdoor Education Center located at Woodworth provided the opportunity for 60 families to participate. The camps received national media coverage, which started several similar programs in other states. The program serves as a springboard for families to explore and enjoy other places in Louisiana.

Becoming an Outdoors-Woman (BOW)

BOW was again a tremendous success, having overflow sessions at both workshops. This program introduces women to the outdoors by providing the training needed to participate in a variety of outdoor activities. Over 250 women attended short courses on a variety of topics designed to teach new ways to enjoy the outdoors and how the Louisiana Department of Wildlife and Fisheries manages our natural resources.

Wetshop

Wetshop is a week-long teacher workshop that introduces classroom teachers to environmental topics related to Louisiana's coastal areas. Training and materials are provided for the teachers to take back and use in their classrooms. Teachers are trained in activities and resource management issues relevant to Louisiana at the St. Amant Marine Research Lab on Grand Terre Barrier Island. Teachers work alongside resident marine biologists to learn the link between gathering scientific data and resource management.

Partnership Programs

The Education Section, with support from Ducks Unlimited, Wild Turkey Federation and Safari Club International conducted several teacher workshops this year. These programs were conducted at LDWF's Outdoor Education Centers. Teachers received hands-on training in resource management issues that pertain to Louisiana.

Scout Programs

Educators were involved in developing programs and working with Boy and Girl Scout troops to assist them with outdoor education and earning of merit badges. Scouts receive training in wildlife and fisheries careers and are schooled in ways that help them earn merit badges in conservation, ethics, outdoor skills, hunter safety and resource management.

National Hunting and Fishing Day

The Education Section also plays a major role each year in the planning and coordinating of National Hunting and Fishing Day activities at five sites around the state. Numerous activities and informational displays are manned by staff and volunteers to stimulate interest in a variety of outdoor activities and inform the public of the services and accomplishments of the Department.

Louisiana Seafood Promotion and Marketing Board

The responsibility of the Louisiana Seafood Promotion and Marketing Board is to strengthen and expand Louisiana's commercial fishery-related industries and cultivate new markets for the state's seafood products.

Other general areas of responsibility include: efforts to increase overall contribution of the commercial seafood industry to the economy of the state; development of a broader consumer base throughout the United States and abroad; maintaining and increasing levels of production and dockside prices for Louisiana seafood products; creation of jobs in the fishing and processing sectors; increasing the economic impact of the industry through further value-added processing; and promoting higher standards of product quality for the entire producing, processing, and marketing segments of the seafood industry. The Board also serves the general public by providing greater product awareness, information about preparation, and education on the benefits derived from seafood consumption. The Board also conducts special product promotions for retail and food service operations.

Fur and Alligator Advisory Council

The responsibilities and accomplishments of the Fur and Alligator Advisory Council are included in the section discussing furbearer programs of the Fur and Refuge Division.

OFFICE OF MANAGEMENT & FINANCE

The Office of Management and Finance is administered by the Undersecretary who directs and is responsible for accounting and budget control, contract management, grants management, program analysis and management, personnel management, information processing systems, procurement, and other administrative services. The office has seven sections: Fiscal, Licensing/Registration, Personnel, Socioeconomic Research and Development, Administrative Services, Property Control, and Computer.

FISCAL

The Fiscal Section is responsible for the development and implementation of all financial operations of the Department. The primary objective is to assure that financial activities are handled in compliance with standard accounting practices and in accordance with all applicable state and federal laws and regulations.

The Fiscal Section includes the following functions: budget, accounts payable, auditing, payroll, financial reporting, federal aid, revenue receivables and classification, and fund management.

The fiscal staff works with the Undersecretary in planning and analysis as well as in the areas of expenditure control and resource allocation.

Departmental Financial Statistics

The following statistics were obtained from the Department=s annual budget and from annual financial statements prepared by Fiscal staff.

1998-99 Department Expenditures by Category

$ 28,697,807	Personal Services
10,197,101	Operating Expenses
330,323	Professional Services
2,740,082	Other Charges
167,495	Interagency Transfers
5,793,480	Acquisitions
1,178,130	Major Repairs
$ 49,104,418	**Total Expenditures**

1998-99 Means of Financing by Source

$ 30,758,589	Conservation Fund
6,248,829	Other Statutory Dedications
470,229	Interagency Transfers
10,077,071	Federal
1,549,700	State General Fund
$ 49,104,418	**Total Means of Financing**

Revenues to the Conservation Fund, the Department=s major operating fund, were generated from the following sources:

$ 2,920,594	Royalties Oil/Gas
458,447	Other Income from Land
920,577	Severance taxes, fill material
822,922	Oyster lease rents
166,856	Interest income
4,157,695	Commercial Fishing Licenses
3,484,186	Boat reg., seismic, survey
9,455,777	Hunting and fishing licenses
538,239	Sales of promotional merchandise
1,511,867	Miscellaneous
$ 24,437,160	**Total Collections**

LICENSING

The License Section is responsible for issuing all recreational and commercial licenses and collecting all funds paid for these privileges. The section also registers all boats. The section serves the public at the main office in Baton Rouge and New Orleans.

In the year 1999, the section issued 1,583,350 recreational licenses and 93,393 commercial licenses. The section also registered 145,334 boats.

Major accomplishments of the section during 1999 were:

Implementation of the new Electronic License Issuance system for recreational licenses mandated by Act 164 of the 1998 Special Session.

Reorganization of the Commercial License and the Motorboat Registration units into a single unit to provide faster and better service.

Redesign and reconstruction of the counter area in the Baton Rouge office to double the number of customers that can be served at a time.

Implemented new recreational and commercial licenses established by the legislature in 1999.

PERSONNEL

The Personnel Section provides assistance to active employees, retirees, former employees, and their dependents. The staff furnishes guidance and advice about such personnel matters as rate of pay, position allocation concerns, insurance benefits, retirement benefits, worker's compensation issues, employment opportunities, and Civil Service rules. The staff also provides guidance, advice, and interpretation to employees on agency policies and procedures.

The Personnel Section is responsible for development and implementation of human resource programs such as Safety, Employee Relations, Training, Classification and Pay, Selection/Placement, Position Control, Organizational Analysis, Affirmative Action/EEO Compliance, Recruitment, and Benefits programs.

The Personnel Section maintains a very aggressive recruiting program that has resulted in a broader applicant pool for the selection and placement of our unique scientific, technical and law enforcement positions which make up the majority of the departments workforce. Also, the Personnel Section continues providing guidance to agency staff in the selection and placement procedure. Participating in interviews and providing guidance to agency staff in following legal interviewing guidelines has allowed us to achieve compliance with state, and federal laws, and department policies. Delegated authority is utilized on most positions for the agency, which allows our staff to assess the qualification requirements and pay levels of jobs to ensure the needs of the agency are being met.

In the organizational analysis and position control area, the Personnel Section maintains a quarterly reporting system. Managers and supervisors are provided with an employee action history, a listing of vacant, funded positions, and position listing reports on a quarterly basis to assist them with personnel matters in their respective divisions. Further development of these programs continues in an effort to enhance and broaden personnel services to the management staff.

As a result of Personnel efforts with training, accomplishments have been made in providing staff with special training needs as well as continuing to coordinate classes through the Comprehensive Public Training Program(CPTP). Department employees have taken 111 CPTP classes this fiscal year. The Personnel Section was responsible for the training of about 191 employees in Coaching the Experience Driver II and 332 employees attended Louisiana Safe Boating Course. Through coordination with the CPTP program, computer center and the Personnel Section, employees were offered nine different types of computer training through computer base software and 86 courses were given.

A member of the Personnel staff serves as the designated Safety Analyst for the department and is responsible for the maintenance of a comprehensive loss prevention and safety program. The Safety Analyst develops policies, procedures and work requirement relative to training in a safety program and serves as the chairman of the Accident Review Committee. This position is responsible for a need's analysis on training/information dissemination and the distribution and maintenance of a safety manual. Through the safety program Personnel, is responsible for the development, promotion and maintaining of guidelines for a violence-free workplace for the department. This includes implementing and maintaining effective security measures to minimize exposure to conditions that could result in harm to employees. The Safety Analyst serves as the liaison between department employees, Office of Risk Management and others involved in safety issues. This section also provides training in safety related subjects.

In the Fiscal year 97-98 the Personnel staff had more than 1,694 personnel actions compiled, analyzed and processed in this fiscal year to ensure the maintenance of employee records.

SOCIOECONOMIC RESEARCH AND DEVELOPMENT

The Socioeconomic Research and Development Section conducts, coordinates, and recommends multiple economic research studies pertaining to wildlife and fisheries habitats and resources of Louisiana and the Gulf Region.

Types of research projects include:

- resource and habitat valuations,
- economic impact assessments,

- analysis of alternative management practices,
- feasibility and effectiveness of alternative programs,
- analysis of seafood marketing distribution channels,
- economic benefits/contributions of commercial and recreational wildlife and fisheries activities,
- evaluation of participation patterns and expenditures in wildlife and fisheries activities,
- evaluation of economic impacts of wildlife and fisheries related rules, regulations and policies,
- estimation of cost of production profiles for industries involved in the harvesting of fisheries resources, development of descriptive analyses of industries engaged in harvesting and adding value to the State's fisheries resources.

The Section's research findings are presented to agency staff and published in departmental papers and in peer-reviewed scientific journals. The Section also presents its research findings at appropriate professional and scientific meetings and conferences.

The Socioeconomic Section provides assistance and support to other divisions and sections within the department to accomplish their tasks, objectives and short and long-term goals. It assists with annual revenue projection estimates, develops revenue enhancement proposals, investigates alternative sources of revenue, develops statewide federal aid management plans, and prepares the economic section of the wildlife and fisheries management plans. Section members confer and meet with federal, state, and local officials to review mutual problems, procedures, and actions involving wildlife and fisheries resources. They participate in study groups, task forces, and committees established to effectively study, manage, and improve wildlife and fisheries resources in the state of Louisiana and in the Gulf Region.

The Section administers the Louisiana's Clean Vessel Grant Program. Under this program, funds are provided to marina owners for construction and renovation of boat sewage disposal facilities. Marinas are reimbursed up to 75 percent of costs for approved activities. Funds are also used to develop educational and informational materials to encourage boaters to use these facilities and promote environmentally responsible behavior.

The Department's Customer Service Program is administered by the Socioeconomic Research and Development Section and the statewide Customer Service Committee. The Committee and Section are responsible for the development and implementation of an annual customer service and employee plan and production of an annual customer service assessment report. The assessment report is based on survey information, comments, suggestions, and complaints received from customers and employees throughout the year.

ADMINISTRATIVE SERVICES

The Administrative Services Section consists of Purchasing and General Services.

The administrative staff worked closely with and supported other divisions in their endeavors. More specifically they assisted with agency term contracts specific to Wildlife and Fisheries, merchandising, seafood promotions, alligator harvest, timber sales, farm leases, and managed deer and turkey hunts.

Purchasing

Purchasing insures compliance with all state and department laws and regulations concerning procurement. Purchasing trains and serves as the help desk for all divisions in the state wide computerized system called ISIS. The purchasing part of ISIS is called AGPS.

The following are tallies of the purchase orders issued and/or reviewed for compliance by the Purchasing staff for 1998/99 fiscal year: requisitions through Louisiana State Purchasing - 90; department purchase orders B 992; department release orders approximately - 1,898; department small purchases approximately -16,672. In addition, 23 leases were maintained, initiated or updated.

General Services

The mail system, printing, receiving, messenger, reproduction and supply room are sub-units of General Services. Over 300,000 pieces of mail were processed. Over 2 million copies were produced on the duplicating machine. The supply room utilized an automated computer application to maintain a current inventory and distribute necessary office supplies to headquarters, district offices and remote facilities.

PROPERTY CONTROL

The Property Control Section consists of property control, fleet management and risk management claims sections and Headquarters Motor Pool. The

Property Control Section insures that all equipment purchased is properly tagged and accounted for in accordance with all State rules and regulations.

A physical inventory is conducted annually at the various offices and field installations throughout the State. The inventory consists of some 16,779 items with a total acquisition cost of over 41,373,576 million dollars.

Vehicle Maintenance

The Property Control staff is responsible for managing the 566 Department owned vehicles. The section insures compliance with all State Fleet rules and regulations. The section receives and distributes over one-hundred new vehicles each fiscal year.

Risk Management Insurance Claims

The Property Control staff provided assistance and information to Department employees who filed some 650,000 dollars worth of collision, liability, property and comprehensive claims during the past fiscal year. These claims were handled and processed through the Office of Risk Management.

COMPUTER CENTER

The Computer Section oversees the department's information processing resources. Central computers serve local and remote networks, processing data for enterprise wide applications as well as work-group oriented activities. Department employees are connected to these systems via a combination of terminals and personal computers, giving them access to the wide variety of information processing capabilities.

The section staff provides support to department personnel by responding to questions on hardware and software and maintaining databases. In addition, the section furnishes statistical analysis and personal productivity tools.

Accomplishments over the past year have included many enhancements to existing application systems as well as the implementation of new capabilities. State of the art data capture techniques were used to implement a new commercial fishing trip ticket application. All department "mission critical" information systems were certified as "Y2K" ready prior to the June 30 deadline mandated by the Governor.

OFFICE OF WILDLIFE

The Office of Wildlife consists of two divisions, the Wildlife Division and the Fur and Refuge Division.

WILDLIFE DIVISION

The Wildlife Division is responsible for the state's wildlife conservation program and gathering biological data to properly manage wildlife resources.

Statewide Division responsibilities are administered through seven regions. Region biologists and wildlife specialists regularly serve the public by:

- developing and managing wildlife habitat and infrastructure on the 916,000 acres of land in the Wildlife Management Area system.
- providing technical assistance to private landowners interested in enhancing and managing their property for wildlife.
- monitoring wildlife populations and gathering information for the development of hunting season recommendations and improvement of wildlife habitat.
- providing and managing public hunts for deer (regular gun, muzzleloader, and archery), dove, quail, rabbit, raccoon, squirrel, turkey, woodcock, and waterfowl on Wildlife Management Areas.
- contributing to management of alligators and furbearers on WMAs and public lakes.
- assisting the public with nuisance animal problems caused by animals such as coyotes, beavers, alligators, squirrels and deer.
- presenting programs to conservation and civic organizations and providing information and assistance to television and newspaper journalists.

The state is divided into seven administrative regions as follows:

Region 1 (northwest Louisiana: Bienville, Bossier, Caddo, Claiborne, DeSoto, Red River, and Webster parishes). Habitat consists predominantly of rolling, mixed pine-hardwood forest habitat bisected by the Red River and agricultural lands bordering it. Approximately 75,000 acres are included in the Bodcau, Jackson-Bienville, Loggy Bayou and Bayou Pierre Wildlife Management Areas. All WMAs in Region I are managed to provide all segments of the hunting public the opportunity to utilize the WMAs in a quality environment.

Region 2 (northeastern Louisiana: East Carroll, Jackson, Lincoln, Morehouse, Ouachita, Richland, Union, and West Carroll parishes). Habitat types consist of rolling mixed-pine hardwood forest and Mississippi River bottomland forests. The Bayou Macon, Big Colewa, Georgia-Pacific, Ouachita, Russell Sage, and Union WMAs are located in the region. In addition, the Floy McElroy Wildlife Management Area, a 700-acre tract donated to the state, is managed on a low maintenance basis until fully released to the Department by the donor.

Region 3 (west central Louisiana: Grant, LaSalle, Natchitoches, Rapides, Sabine, and Winn parishes). Habitat consists primarily of piney woods. Department-owned lands include Dewey W. Wills and Little River wildlife management areas, totaling 63,220 acres. Three leased WMAs (Alexander State Forest, Camp Beauregard, and Sabine) provide an additional 35,372 acres for outdoor recreation. Leased WMAs are provided without fee to the Department. Catahoula Lake is a state owned water bottom consisting of approximately 36,000 acres. The lake has been designated as a wetland of international importance as it provides premier inland wintering waterfowl habitat. In addition to the WMAs the U. S. Forest Service owns over 500,000 acres within Region 3.

Region 4 (east central Louisiana: Caldwell, Catahoula, Concordia, Franklin, Madison, and Tensas parishes). Habitat consists of diverse habitats, ranging from mixed pine-hardwood uplands to bottomland hardwood forests associated with the alluvial flood plains of the Boeuf, Black, Red, Ouachita, Tensas and Mississippi river systems. Six WMAs (Red River, Three Rivers, Boeuf, Sicily Island Hills, Big Lake, and Buckhorn) are located in Region 4 for a total of approximately 145,000 acres.

Region 5 (southwestern Louisiana: Acadia, Allen, Beauregard, Calcasieu, Cameron, Evangeline, Jefferson Davis, Vermilion, and Vernon parishes). Habitat ranges from extensive coastal marshes, to prairies and vast agricultural areas, to hardwood bottoms, to rolling hills of pine plantations or mixed pine-hardwoods. Six WMAs (Boise-Vernon,

Fort Polk, Marsh Bayou, Peason Ridge, Sabine Island, and West Bay) totaling 268,480 acres are managed within the region.

Region 6 (south central Louisiana: Avoyelles, Assumption, Western Ascension, Iberville, Iberia, Lafayette, Pointe Coupee, St. Landry, St. Martin, St. Mary, Terrebonne, West Baton Rouge, and portions of West Feliciana parish). Habitat type ranges from mixed pine-hardwoods to backwater bottomland hardwoods interspersed with agricultural lands, and cypress-tupelo swamps to open-water areas. There are seven WMAs, comprising 98,868 acres (Sherburne, Thistlethwaite, Grassy Lake, Spring Bayou, Attakapas, Elm Hall, and Pomme de Terre), one federal refuge, and U.S. Army Corps of Engineers land within the region.

Region 7 (southeast Louisiana: Ascension, East Baton Rouge, East Feliciana, Livingston, Orleans, Jefferson, St. Helena, Tangipahoa, Washington, St. Tammany, St. Bernard, St. James, St. John, Plaquemines, St. Charles, eastern Lafourche, eastern Assumption parishes). Habitat type ranges from marshes and swamps to rugged loess bluff uplands. Ten wildlife management areas (Pearl River, Joyce, Manchac, Sandy Hollow, Bens Creek, Hutchinson Creek, Biloxi, Lake Ramsey and Wisner) consisting of 141,202 acres are located in this region.

The Wildlife Division divides its responsibilities into two major categories: (1) Habitat Stewardship and (2) Research and Management.

HABITAT STEWARDSHIP

Habitat Stewardship is organized in three basic categories: Land Acquisition, Land Development, and Forest Management.

Land Acquisition

Land acquisition for wildlife management purposes is the best way to ensure that there is available habitat for the state's diverse wildlife resources. During fiscal year 1998-99 three acquisitions and two donations were completed:

- 40 acres were purchased and added to Sicily Island Hills WMA in Catahoula Parish
- 80 acres were purchased and added to Russell Sage WMA in Ouachita Parish
- 30 acres were purchased and added to Russell Sage WMA in Ouachita Parish
- a 2,839-acre donation was accepted and the Elm Hall WMA was created in Assumption Parish
- a 786-acre donation was accepted and the Lake Boeuf WMA was created in Lafourche Parish

Land Development

Land development involves both wildlife habitat enhancement and infrastructure improvement to accommodate public use of the 40 WMAs. Typical activities include road and bridge repair and construction, vegetation control, tree planting, water control structure operation, pump station operation, wildlife food plot development, and boundary maintenance. Coordination and monitoring of mineral exploration activities is also a function of the Wildlife Division on WMAs.

Forest Management

The mission of the Forest Management Program is to improve forest and wildlife habitat on WMAs through sound forest management and reforestation practices. This program also serves to demonstrate the integration of forest management and wildlife habitat management to private landowners.

Public Lands: General forest inventories were completed in 17 scheduled compartments on 12 WMAs. Additionally, numerous tracts of private land were inventoried for possible acquisition.

Harvest preparations, including sale layout, inventory, regeneration counts, marking, map work, and proposal preparations were completed on Buckhorn, Grassy Lake, Loggy Bayou, Ouachita, Red River, Russell Sage, Sherburne, Three Rivers and Union WMAs. One "no sale" was reported on Three Rivers due to the depressed timber market. Timber harvest to improve wildlife habitat were initiated on Buckhorn, Grassy Lake, Red River, Russell Sage and Union WMAs. No southern pine beetle infestations/outbreaks were reported on WMAs this year. Reforestation work was continued on other department properties with concentration on Bayou Macon, Bayou Pierre, Boeuf, Colewa Bayou, Ouachita and Red River WMAs. Activities included site development and preparation, seedling planting, survival plot establishment, and survival checks. More than 1,800 acres were reforested during the 1998-99 season.

Acorn and various tree seed collections were conducted to ensure a seed and seedling source for future reforestation efforts. The annual WMA mast survey aids this effort by concentrating collection

efforts where the most needed types of trees species are available. The mast survey also provides an indication of the future abundance of forest wildlife species such as squirrels.

Private Lands: LDWF Forestry Section and Region al biological staff provided technical assistance through the Louisiana Forest Stewardship Program, offered by the Louisiana Department of Agriculture and Forestry for private non-industrial landowners. The program supports a multiple use approach to forest management. LDWF provides the wildlife management expertise. Numerous landowners were assisted in fiscal year 1998-99.

Professional Forestry Education: Wildlife Division Regional and Forestry staff attended education courses to develop and enhance their forest management skills. Coordination continued with LSU and La. Office of Forestry to develop training programs for management of bottomland hardwoods.

Forestry/Wildlife Research: Forestry Section staff continue to develop, coordinate and participate in research oriented toward management of our bottomland hardwood resources. A hardwood plantation thinning study was initiated this year on Red River with LSU School of Forestry, Wildlife and Fisheries. Additionally, Forestry Section staff initiated and carried out a neo-tropical migratory bird census survey and breeding bird survey comparing species richness and abundance in the thinned versus unthinned versus natural forest stand on Red River WMA. This will serve as our baseline data for continued monitoring of the effects of our management on these wildlife populations.

Additional research projects continue on other WMAs in conjunction with LSU, Louisiana Tech University, USGS National Wetlands Research Center, USFWS and Natural Resources Conservation Service. Our forest management research efforts are usually geared toward long-term study, since forest management practices have short and long term consequences.

RESEARCH AND MANAGEMENT

A wide range of research and management work is conducted in order to maintain healthy productive populations of game and to provide recreational opportunities for citizens to enjoy these species. Staff biologists gather data on game birds and animals, largely for use in formulating hunting regulations. The game species programs are Upland Game, White-tailed Deer, Waterfowl, and Wild Turkey.

Upland Game

Dove

Populations have been monitored nationwide since 1953 by a call-count survey. The survey makes an estimate of the number of birds by recording the number of doves heard calling during the nesting season along certain roadsides. At each stop a biologist records the number of doves heard calling for a prescribed time. Louisiana's dove population is monitored along 19 routes randomly located throughout the state. In May 1999, the breeding population index based on doves heard along the routes was 15.7. This represents a 15.1 percent increase in doves from 1998. The U. S. Fish and Wildlife Service uses the call-count survey to determine hunting season lengths and bag limits for each state. States may then select a season with this framework. Dove hunting regulations for Louisiana in 1999 were set at 70 days with a bag limit of 12 birds. Shooting hours remained unchanged from the year before allowing, all-day hunting, except on opening weekends of each segment when hunting was restricted to afternoons only. A survey of resident license holders indicates that approximately 61,900 Louisiana hunters harvested slightly over 1 million doves during the 1998-99 season.

Quail

Two statewide population surveys were conducted this past year: the wing and hunter survey and the fall whistling survey. Hunters participating in the annual wing survey supplied 205 wings. From these wings, sex and age ratios were determined as well as peak hatching periods. Production per adult hen during 1998 decreased by 27.7 percent from 1997. Higher production indices are usually associated with wetter and cooler than normal summer weather. The summer of 1998 was the warmest on record and moderate to extreme drought conditions occurred over the entire state. Therefore the semi-drought conditions contributed to the decrease in production indices. In addition, hunters provided data on coveys found per hunt, bag, and crippling losses. Similar information was also obtained from Sandy Hollow WMA where daily check-in is required.

Statewide fall whistling counts were conducted on 42 randomly located routes and an additional six routes on Department WMAs. On a statewide basis, counts were lower (but not significantly) than last year. This was possibly due to the unfavorable summer weather conditions affecting the production rates.

Inferences about population status and habitat conditions were developed based on the combined results of these two survey techniques and general observations by Department personnel during the breeding season. Data are summarized in the Federal Aid W-55-13 Annual Report.

A survey of resident license holders indicates that approximately 4,100 Louisiana hunters harvested 34,400 quail during the 1998-99 season.

Woodcock
A woodcock banding program was initiated in 1990 to determine sex and age ratios, site fidelity, movement patterns and harvest rates of woodcock wintering in Louisiana. From December 1998 to January 1999, 234 woodcock were banded on Sherburne WMA. Fifteen were reported recovered by hunters. Hunters on Sherburne also provided data on hunt characteristics through use of mandatory self-clearing stations. Data are summarized in the Federal Aid W-55-13 report.

The Department participated in the U. S. Fish and Wildlife Service Annual Woodcock Wing Bee in 1998. Data derived from aging and sexing about 9,000 woodcock wings are being used to develop trend data on woodcock production and hunter success. These data, in combination with breeding bird surveys, are used to develop management strategies for woodcock. Although woodcock are considered an under-utilized species in Louisiana by many people, Louisiana hunters' harvest of woodcock actually ranks among the nation's highest. A survey of resident license holders indicates that approximately 5,700 Louisiana hunters harvested 21,200 woodcock during the 1998-99 season.

Rabbit
A project initiated in 1993, to determine the prescribed burning rotation for maintaining old field habitat in bottomland alluvial sites, was completed and a final report was submitted. The study found that plots burned on a 3-year rotation, rather than annually, provided better rabbit habitat. Data are summarized in the Federal Aid W-55-12 Annual Report. A survey of resident license holders indicates that approximately 63,000 Louisiana hunters harvested 631,200 rabbits during the 1998-99 season.

Pheasant
Spring cock pheasant crowing counts were conducted in March and April 1999 to provide an index to the size of the population. The average count of 12 calls/survey was about 29 percent lower than in 1998 and the peak count was 3.4 percent lower. Data are summarized in the Federal Aid W-55-13 Annual Report.

White-tailed Deer
During the 1998-99 deer season, 243,400 white-tailed deer were harvested by 177,800 deer hunters in the state. On WMAs during managed deer hunts, there were 3,699 deer harvested. The total hunter effort for the managed hunts was 50,882. The Deer Management Assistance Program (DMAP) cooperators harvested 28,310 deer. There were 1,408 hunting clubs enrolled in this program.

Deer harvest information was entered into a computer program for analysis and evaluation and used to establish deer seasons for 1999-2000. Harvest data for WMAs and DMAP cooperators are summarized in Federal Aid W-55-13 Report. The computer program for data entry of harvest data was changed and required time to update past historical data into the new format. The Louisiana Big Game Recognition book was updated. A booklet was produced by the Deer Section for the 2nd Big Game Recognition Program, 1995-1997, which lists the trophy deer and turkey harvested during those three years.

Disease and parasite investigations were continued on both private and public lands. This work is in association with the Southeast Cooperative Wildlife Disease study in Georgia. A joint research project was established with ULM to investigate the breeding season of deer in Area 4. Biologists presented results of management projects and studies at the Annual Southeast Deer Study Group meeting. The Deer Section also participated in the Quality Deer Management Seminars in the state.

Waterfowl

Inventory
Louisiana has approximately 3.5 million acres of coastal marsh that winter large and diverse waterfowl populations. Aerial waterfowl inventories of

the entire coastal marsh, as well as associated agricultural lands in north central and northwest Louisiana, are conducted each winter. It is estimated that 5 million waterfowl migrate down the Central and Mississippi flyways to winter in Louisiana.

The mid-winter inventory indicated 3.8 million ducks and 950,000 geese wintered in the coastal marsh and inland areas of the Mississippi Delta during January 1999.

In the 1998-99 season, 102,000 hunters bagged 2.6 million ducks. This represents a 2 percent increase in the number of hunters, and an increase of greater than 7 percent in the duck harvest compared to the previous year. Species composition were: green-winged teal (21 percent), gadwall (18 percent), blue-winged teal (15 percent), mallard (12 percent), wood duck (8 percent), with scaup, pintail, shoveler, wigeon and ring-necked duck comprising most of the remainder.

Goose harvest increased by 42 percent in 1998-99 to 287,000. Snow geese comprised 66 percent of the harvest with white-fronted geese for the majority of the remainder.

North American Waterfowl Management Plan
Louisiana is continuing to play an important role in the North American Waterfowl Management Plan (NAWMP). Portions of two NAWMP joint ventures are located in Louisiana: the Gulf Coast and Lower Mississippi Valley. The department has strived to maintain ongoing projects and other activities associated with the NAWMP.

The Louisiana Waterfowl Project, a private wetlands development program, has completed its seventh year. This is a cooperative program involving LDWF, Ducks Unlimited, U.S. Department of Agriculture/Natural Resource Conservation Service, various pipeline companies, and selected private land owners. This project was approved for NAWCA funding resulting in enhancement or restoration of 8,359 acres in Louisiana during the grant period (1996-1998). During 1998 alone, 29 landowners participated in LWP with 106 water control structures installed resulting in the restoration or enhancement of 4,261 acres.

Wood Duck
During 1998, the Department banded 1,413 wood ducks, an increase over the 1,148 banded in 1997. Approximately 909 of these birds were captured with cannon nets and the remainder were nesting hens banded in wood duck nest boxes.

The wood duck box program completed its ninth year in 1998. An additional 200 boxes were installed on Department WMAs. There are 2,750 boxes in use now; 1,167 of these are within Region 6. Box utilization by nesting wood ducks was high this year and ranged from 52 to100 percent with an average of 80 percent. It is anticipated that an additional 150 boxes will be added in 1999.

Wild Turkey
Department biologists reported a good hatch in 1998 over most of the state's upland areas and anticipate a stable population. During 1999, 10 wild turkeys were trapped for restocking. These birds were released in south Sabine Parish. An additional 16 turkeys were caught on Sherburne WMA and 16 captured on Jackson-Bienville WMA for ongoing and new research projects. Restocking will continue until all suitable wild turkey habitat throughout the state contains a viable turkey population.

The most recent hunter harvest survey indicated 20,500 turkey hunters harvested 9,200 wild turkeys during the spring of 1998. The wild turkey population in Louisiana is estimated at 90,000 to 100,000 birds.

The voluntary turkey check stations continued to produce valuable information on wild turkeys throughout Louisiana. About 15-20 percent of the wild turkey harvest is reported at the 143 check stations, and this information allows the Department to determine population trends, age classes of harvested wild turkeys, weights and other factors which assist in making management decisions. During the 1998 spring gobbler season, 1,631 wild turkeys were recorded at these check stations. The Department continues to monitor for disease and parasites in order to anticipate local problems with the wild turkey flocks.

A recently completed document entitled *Louisiana's Wild Turkey Restoration Program 1962-1997* which reviews the history of wild turkeys in Louisiana and the LDWF's restoration effort was published in 1998. This publication was funded by the Louisiana Chapter of the National Wild Turkey Federation and is available upon request from the department.

FUR AND REFUGE DIVISION

The fur and refuge division is responsible for managing four Coastal Refuges and five Coastal Wildlife Management Areas which encompass 12.5% of Coastal Louisiana. These areas include the two major river deltas on the North American Continent and serve as test sites for marsh management strategies designed to stabilize isohaline lines, conserve and restore coastal wetlands, and provide productive wildlife habitat. In addition, management expertise and guidance is provided to private owners. Professional expertise is provided for the implementation of international, federal, and state legislation and regulations governing wise use of alligators, furbearers, coastal marshlands, and other important wildlife and fisheries resources.

Responsibilities of the division are divided into three major categories: Land Management; Species Research and Management; and Publication/Cooperative Research/Technical Assistance/Science Information.

LAND MANAGEMENT

Land Management on the division's four coastal refuges and five wildlife management areas is primarily directed toward improving wetlands vegetation productivity which in turn benefits resident and migratory waterfowl as well as many wetlands ecosystem-based animals (furbearers, mammals, reptiles, amphibians, freshwater fish, estuarine organisms, and game and non-game birds).

One important facet of land management on coastal marshes is monitoring mineral activities. Each activity is individually reviewed and must comply with the Department's mineral regulations, deeds of donation, and various agreement letters.

Ecological monitoring is also conducted in association with marsh management projects to provide guidance to various landowners in management decisions. Information on precipitation, water levels, and salinities is used for management on division properties and adjacent private properties. Daily rainfall records are submitted to the National Weather Service. Water level and salinity stations are monitored by monthly or weekly inspections or continually by electronic data recorders.

Rockefeller Wildlife Refuge

Rockefeller Wildlife Refuge continues to be a leading innovator for coastal marsh restoration and enhancement technology and a prime example of how intensive management protects and enhances coastal wetlands for fish and wildlife. Rockefeller continues to stay on the cutting edge of coastal marsh issues, from the earliest marsh management activities to the latest recommendations regarding 3-D seismic activity, with the understanding that vegetation productivity holds the key to long-term health of the wetlands ecosystem.

Marsh Management, Restoration and Mineral Management

Rockefeller's staff maintains over 200 miles of levees and 40 water control structures which result in conservation of approximately 84,000 acres of refuge wetlands. These also benefit water management capability of 100,000 acres within the Mermentau River Basin. Work includes intensive management of water level/salinity control for 12 large units geared towards vegetation, fish and wildlife production. Objectives of maintenance and manipulation of the refuge's system of levees and water control structures vary somewhat by management unit, but generally goals are to maintain marsh health and provide conditions favorable for production of waterfowl food plants.

Tropical Storm Frances made landfall on the lower Texas coast on September 11, 1998. The storm produced 45 mph winds and tides 4 to 5 feet above normal high tide in Cameron Parish. Rainfall from the storm at Rockefeller Refuge totaled 13.27 inches over a five day period. Rockefeller Refuge wetlands, wildlife and fish were negatively impacted by the storm. A helicopter damage assessment survey was conducted on September 13, 1998 and an average beach erosion rate of 50 feet (160 acres) in a four day period was estimated due to Tropical Storm Frances. Normal annual beach erosion for Rockefeller averages 37.1 ft. per year.

Ten marsh projects were initiated during fiscal year 1998-99 which enhanced 39,005 wetland acres. The Unit 5, Josephine Bayou, and Dyson Bayou water control structures were repaired to maintain water management capabilities and prevent salt water intrusion.

A new three pipe, 48-inch diameter, stop-log, flapgate water control structure was installed in the south Unit 3 levee. The new structure replaced a deteriorated two pipe structure. The new structure improved water management capabilities within the 3,700 unit.

The sheet pile dam at Royalite Canal was destroyed by Tropical Storm Frances. An emergency contract was initiated to replace the structure to protect both the Refuge and the Mermentau Basin from salt water intrusion.

Major levee repairs were made in Units 2, 4,5, and Price Lake. Levee repairs will assure continued water and salinity management capabilities on refuge and adjacent private wetlands.

Ditch cleaning occurred in Units 10/13 to enhance water management capabilities. Removal of silt and vegetative debris from the ditches allowed for a Spring/Summer drawdown to promote the growth of high quality waterfowl foods.

The unmanaged area south of Price Lake Unit was ditched to allow Tropical Storm Frances storm water to drain. Excessive storm water ponding was killing vegetation in the area.

The 3.1 million dollar 48-mile Rockefeller Refuge Levee Refurbishment project was initiated during fiscal year 1998-99. This project will assure hurricane protection, salt water intrusion protection, and enhanced water management capabilities for Rockefeller Refuge and the Mermentau Basin.

As a general rule 15 to 35 percent of the refuge is control burned annually. Last year approximately 2,000 acres burned due to summer lightning strikes throughout the refuge. No other burning occurred due to a three year research project being conducted to assess invertebrate abundance, bird use, and avian foraging ecology on the refuge. Normal burning practices will resume during Fall/Winter 1999.

Approximately 100 oil/gas wells have been drilled on Rockefeller Refuge since 1950. Three wells were drilled during fiscal year 1998-99. Rockefeller has a model mineral development program to assure that mineral exploration and production activities are compatible with wetlands management activities. Two groups of Russian dignitaries visited Rockefeller during fiscal year 1998-99 to learn about the Mineral Management Program.

Refuge personnel have been actively involved in 3-D seismograph activities associated with land management and applied research for several years. Rockefeller personnel developed a model program to minimize environmental impacts associated with seismograph activities and documented these findings in two research papers detailing the effects of 3-D seismic activity on soil elevations and vegetation. Research findings concluded that strictly managed seismic activity on Rockefeller Refuge had no long term impact on marsh soils or vegetation. Seismograph activities were completed during fiscal year 1998-99.

As part of a division-wide effort to precisely document effects of water management in coastal marsh, Rockefeller staff maintain six continuous water level and salinity recorders at strategic locations within the refuge marshes.

Marsh enhancement units managed by structural means have proven popular with sports fishermen, resulting in overcrowding in many places. Damage to levees and alterations of automatic features of structures that regulate water salinities and levels has been a problem. Additionally, heavy public usage has placed a strain on boat launch and parking facilities. According to data collected in 1998 - 1999, it was estimated Rockefeller Refuge experienced approximately 108,276 man-days of public use. Of this approximately 105,122 man-days were used for consumptive use, and about 3,154 were used for non-consumptive activities.

Several mitigation proposals were developed to comply with regulations from the LA Dept. of Natural Resource's, Coastal Management Division to allow oil and gas exploration on Rockefeller Refuge.

Rockefeller staff began process of acquiring coastal-use permits form LA DNR to construct terraces in several locations on the refuge. Initial construction is scheduled to begin next fiscal year.

Marsh Island Refuge

Marsh Island Wildlife Refuge is located in the center of Louisiana's Gulf coastal marshes. The Island is primarily comprised of brackish marshes, supporting a wealth of resident wildlife species and

provides wintering habitat for thousands of migratory waterfowl and shorebirds.

Recreational activities on Marsh Island Wildlife Refuge include recreational fishing, crabbing, shrimping, boating and bird watching. Nearly 23,105 man days of recreation were spent on the refuge during Fiscal Year 1998-99. Of this approximately 20,825 man-days were used for consumptive activities while only about 2,280 were used for non-consumptive activities.

Marsh Management and Restoration

During this fiscal year, water was held at marsh elevation in both the east and west impoundments to stop emergent vegetation from encroaching into marsh ponds. However, because of limited rainfall in the early to late summer, water levels remained below the marsh floor resulting in some encroachment of emergent vegetation. Stop logs were added to increase water holding capacity and the flaps were opened so the structures could function as a fixed crest weir. This increased water levels and upgraded water quality through exchange. With the increase of water levels the following winter and early spring, these favorable conditions allowed for aquatic plant growth, migratory waterfowl use and mottled duck nesting. Habitat was enhanced on 8,000 acres in these impoundments.

In September 1998 as a result of extremely high water from Tropical Storm Francis, a plug blew out on the East end of the Big Impoundment. Fortunately, salinities were low and damage was limited. Within a month of the breach, repairs were made to the levee.

Due to improved water management in the Northeast and Southeast units, preliminary results indicate more submerged aquatics were produced in 1998-99, than in previous years. In the Northeast unit the percent marsh with emergent vegetation increased and submerged aquatics were more abundant. The Southeast unit demonstrated similar results with increases in emergent vegetation and increases in submerged aquatics. These units provided a wealth of waterfowl foods for wintering ducks. Interior ponds in the impoundments provided food and cover for resident mottled ducks in June of 1998 and 1999. This increase in vegetation was due to a successful draw-down and limited rainfall in the spring, followed by heavy rains of over 10 inches in May and June. This influx of fresh water into these units played a key role in the increased submerged aquatic growth. Vegetative composition and relative abundance was monitored with over 200 sampling stations placed along randomly located vegetative transects. Species composition for both emergent and aquatic plants increased in diversity and was indicative of fresher conditions.

The 5-acre shorebird nesting island in Lake Platte was maintained by controlling the emergent vegetation. Approximately two-thirds of this island is suitable for shorebird nesting. Approximately 30,000 cubic yards of shell was placed on the island. Nesting activity by approximately 475 black skimmers and gull-billed terns was noted in spring 1999.

Approximately 25,000 acres of Marsh Island Wildlife Refuge was enhanced and protected through these construction and maintenance projects during fiscal year 1998-99.

Approximately 40 percent (30,000 acres) of Marsh Island was enhanced through control burning during 1998-99. This burning resulted in the production of three cornered grass. This practice provided habitat for wintering snow geese. In August 1998, lightening struck the Big Impoundment, which resulted in approximately 13,000 acres burned from that incident. In the Spring of 1999 lightening struck the Southeast end of the refuge and burned over 4,500 acres. Fortunately, the water levels are over the floor of the marsh during the Spring, due to higher tides and the vegetation suffered limited impact. Shortly after the fire, the green up provided great habitat for deer and furbearers. The fire occurred before the alligator nesting period, thus not affecting alligator reproduction.

Aerial waterfowl surveys were not conducted because of the limited availability of aircraft and staff work schedules.

Environmental monitoring on Marsh Island includes twelve constant water level and salinity recorders which are deployed through out the Island to provide base line data necessary to make management decisions. Two of these constant data recorders have an additional probe to monitor turbidity. These two recorders are deployed in the Lake Sand area to collect preconstruction data for the Lake Sand CWPPRA Project. This data also provides insight to distribution and abundance of

waterfowl, furbearers and alligators. Water level and salinity from 1986 through 1999 were entered for computer analysis. A weather station at the headquarters collects meteorological data which complements other data collected. Water levels and discrete salinities were taken at the water control structures along with some rainfall data.

The marsh in selected areas was surveyed for impacts of the burning program and vegetative succession following the impact from muskrat and nutria damage. Nutria and muskrat numbers are very low and land areas which were impacted the year before have recovered. Areas especially on the East and Southeast side of the refuge have totally recovered. These areas encompass some of the more fragile marsh of the refuge.

The planning for the Lake Sand Project continued with meetings and field trips on location. The Corps of Engineers conducted a bathymetric survey in the Lake Sand Project Area along with a cultural survey.

Meetings with Exxon continued concerning future exploration and the impact of the Lake Sand Project. These meetings also addressed the removal of abandoned flow lines, structures, etc. and access routes for the construction of the Lake Sand Project.

A shoreline protection project was initiated for the mouth of Bird Island Bayou. Soil surveys were taken along the canal and bay shore to examine potential settling rates for the rock and amounts needed to reach a desired elevation. This project would involve the placement of 1500' of rock on either side of the bayou mouth forming jetties and narrowing the channel opening.

Research
The USL Biology Department under the direction of Andy Nyman and Dr. Tommy Michot (U.S.G.S) initiated a study on assessing the effect of waterfowl herbivory on SAV's in managed and un-managed areas on Marsh Island. Sites were established, exclosures were built and ponds were marked for aerial surveys of waterfowl numbers during the season.

Susan Mopper with USL is continuing research of Iris populations on Marsh Island. She investigates the community, evolutionary and physiological ecology of Iris hexagona, a native Louisiana iris, and its interactions with a suite of pathogens, invertebrates, and vertebrates. In addition to evolutionary ecology, she is investigating the physiological and biochemical mechanisms by which this typically freshwater plant species tolerate salinity stress. Some of the samples collected samples from the refuge are utilized in a green house experiment at USL's Center for Ecology and Environmental Technology.

A project is continuing on the investigation of Spartina alterniflora (Oyster grass) and its mechanisms of propagation and dispersal. This investigation is being conducted by USL and the Marsh Island biologist.

Research associated with the experimental management units was continued during this period. Research will require continual monitoring of water level and salinity inside and outside these units as well as annual vegetation transects and periodic aerial photography. Vegetation transects were established in October, 1993 and are repeated annually. In October 1998 these vegetative transects were completely re-worked and renumbered.

Alligator research continued with a harvest of 784 alligators during July 1999 at a average of 5.8 ft. Over 11,478 alligators have been harvested since 1986. During the FY 1998-99, 397 farm raised alligators were released on the refuge. This research program includes night counts, nest counts, assessment of growth rates, hatchling releases, and data analysis will continue in 1999-2000.

Marsh Island was used by the USDA-ARS Honey Bee Breeding, Genetics and Physiology Laboratory as an isolated mating station for honey bees. The Island has no wild honey bees living on it and is separated from existing populations of honey bees by several miles of open water or salt marsh. Therefore, selected queens and drones can be crossed on the Island without mismatings to other than intended genetic lines of honey bees. The Island was used in the autumn of 1998 to propagate a stock of honey bees with genetic resistance to parasitic tracheal mites. In the spring of 1999, the Island was used extensively to propagate imported Russian honey bees that have genetic resistance toparasitic varroa mites. USDA researchers spent approximately 14 days on the Island during these activities.

State Wildlife Refuge

This refuge, located on the western shore of Vermilion Bay, consists of 13,000 acres of brackish marsh. Management is directed toward providing wintering habitat for ducks and geese. Significant numbers of ducks and geese utilized State Wildlife Refuge during 1998-99. Major repairs were conducted as needed on all Refuge facilities and equipment. The motor vessel Mr. McIlhenny was maintained, along with repairs to the clutches and a new paint job below the water line.

Marsh Management and Restoration

Eight fixed-crest weirs are used to control water levels on the refuge, enhancing and protecting approximately 10,000 acres. All weirs were monitored periodically and appropriate maintenance was conducted. Major repair was conducted on the Hog Bayou weir, the wing walls were replaced, limestone was added and the walk on top was repaired. This weir controls water levels on the southern third of State Wildlife Refuge. Recreational usage at this weir is substantial. Red Fish Point was protected with the installation of a plug and sheet piles. However, the North Lake and South Lake weirs are still in need of repair.

A 18' tunnel hull was purchased for biological data collection (salinities and water levels) and wildlife management (marsh burning, assessing muskrat & nutria populations, etc.) Salinity data was collected at 18 established stations.

Two constant recorders were installed on the refuge, one near Toms Lake and the other at Hell Hole. Data collected from these recorders serves as a valuable tool used in management decisions.

To enhance habitat, approximately 85 percent of the refuge was burned according to carefully controlled plans and supervision during the winter 1998-99. Muskrat and nutria populations were on the decrease during 1998-99, resulting in limited trapping on the refuge. Trapping was limited due to the weather conditions and trapper availability.

Public use activities on State Wildlife resulted in an estimated 15,384 man-days for 1998-99. Of this approximately 12,485 man- days were used for consumptive use while only about 2,899 were used for non-consumptive activities.

Atchafalaya Delta Wildlife Management Area

Atchafalaya Delta Wildlife Management Area consists of approximately 137,000 acres of shallow water bays and marshes. Using November 1998 aerial photography, the U.S. Geological Service (National Wetlands Center) in Lafayette, Louisiana, estimated the following acreages of various habitat types on the Area:

HABITAT TYPE	MAIN DELTA (ACRES)	WLO DELTA (ACRES)	TOTAL (ACRES)
Fresh Marsh	3,006	3,081	6,087
Submerged aquatics	7,543	6,935	14,478
Mud Flats	2,749	1,418	4,167
Forested	413	132	545
Scrub-Shrub	1,455	105	1,560
TOTAL	15,166	11,671	26,837

Common plant species in fresh marsh include delta duck potato, freshwater three-square, cattail, and panic grasses. Forested and scrub-shrub areas are commonly vegetated with black willow and wax myrtle. Submerged aquatics inhabiting shallow open water areas typically include various pond weeds and eelgrass.

A significant turnover in staff has occurred this fiscal year. Former ADWMA Supervisor Mike Carloss resigned his position on July 1, 1998, and was replaced by David Soileau on December 14, 1998. Chester Blanchard, premier equipment mechanic, retired on January 13, 1999, and was later replaced with Shanon Soileau (no relationship to David Soileau).

Management and Restoration

A routine annual "spoil party" (dredged material disposal party) of federal and state interagency personnel was held to develop beneficial use disposal recommendations for the Lower Atchafalaya River

and the Atchafalaya Bay Channel. It was agreed that material dredged below the Eugene Island lighthouse would be deposited on Bird Island, southeast of the lighthouse, and that any material dredged north of that point would be deposited in the form of additional "peninsula fingers" on the east side of the main channel. Peninsula fingers are to be limited to a maximum of 4.0' elevation with a maximum 300-foot-wide crest, with 200-foot-wide gaps having a bottom elevation of 0.0, every 1,500 linear feet of peninsula.

National Marine Fisheries Service agreed to sponsor the construction of another sediment delivery channel (similar to Breaux's Pass) on the east side of the Atchafalaya River for inclusion into CWPPRA Priority Project List 9. Interagency participants held a field reconnaissance to gather data to conduct a Wetland Value Assessment of this proposal. Agency representatives concurred with the Department that the new sediment delivery channel should be constructed through Castille Pass. After initial evaluation efforts, this project is being rated "number 2" out of approximately 50 tentatively selected projects.

A significant effort was made this year to enhance habitat quality and access to the Big Island on the Main Delta. Using equipment and personnel from the Fur & Refuge Division Maintenance Section, some 20 acres of additional food plot clearings were made in the dense wax myrtle overstory of Big Island. Further, two access ditches were dredged from Breaux's Pass to the north side of Big Island to facilitate access for deer and rabbit hunters. Navigation aides in the form of PVC pipes were installed at various locations along Breaux's Pass, the Cul-de-Sac, a number of navigable passes on the Main Delta, and along the "inland route" from the Berwick public boat launch to the ADWMA headquarters.

ADWMA staff conducted an intensive evaluation of some 5,000 hardwood seedlings which had been planted on Big Island in the past by coastal wetland permittees as mitigation for their permit impacts. The results indicated that, overall, 59 percent of planted seedlings had survived through the first growing season. Survival was highest for baldcypress, nuttal oak, overcup oak, sugarberry, and green ash. Nesbitt, Inc., a consulting firm from Baton Rouge, planted 50 more overcup oak seedlings on the north end of Big Island as replacements for seedlings that had not survived the first growing season, as required by its client's federal Corps of Engineers and state Coastal Use Permits.

The recognition that houseboat occupancy at ADWMA was rapidly increasing led to the following efforts to increase mooring pilings on the Main Delta:

- 20 pilings were installed along Catfish Pass by the Department,
- 13 pilings were installed along Catfish Pass by the contractor constructing the CWPPRA project at Breaux's Pass,
- 21 pilings were installed along Catfish Pass by Sonat GOM Exploration (via its contractor, Chet Morrison), and
- 46 pilings were installed along the south bank of Log Island Pass by Sonat GOM Exploration (via Chet Morrison).

A revised houseboat permitting system for ADWMA was developed which now requires that a new houseboat mooring permit be issued annually. Further, permittees have been advised that houseboats must have either:

- A holding tank on board for the collection of human wastes, which shall be removed periodically and the contents of which shall be properly and legally disposed of at a location away from ADWMA; or
- An operational human waste disposal system on board for the collection, treatment, and discharge of human wastes in accordance with U.S. Coast Guard regulations.

Four trappers were selected to trap furbearers and to hunt alligators on ADWMA this year. Harvesting (predominately harvesting nutria with 22 caliber rifles) was fair this year, with whole nutria bringing about $2.50 each. A total of 3,414 nutria, 56 raccoon, and 1 otter were harvested from both deltas. Under the guidance of and instruction from U.S.D.A Wildlife Services Division personnel, ADWMA personnel initiated trapping of coyotes, which appear to be increasing in numbers at the Main Delta.

Under contract to the Department, U.S.G.S. (National Wetlands Center) personnel initiated the development of a map from aerial photography taken in November 1998. When completed, the map will be reproduced for distribution to the public.

Public usage surveys indicated that some 37,700 individuals utilized the ADWMA for consumptive and non-consumptive recreation this fiscal year. Some 22,500 days were spent commercial and sport finfishing, crabbing, and shrimping and some 11,200 days were spent harvesting waterfowl, rabbits, snipe, gallinules, and rails. Further, nearly 4,000 visitor days were expended in non-consumptive pursuits such as camping, boating, bird watching, and nature study.

In the fall of 1998, 1,153 archery hunters harvested 71 deer yielding a hunter effort per harvest ratio of 16 to 1. This compares to only 40 deer harvested in 1997, with a hunter effort per harvest ratio of 23 to 1.

Waterfowl hunting was fairly good with the number of birds harvested per hunter starting at approximately 3.0 early in the season and dropping off to as low as 1.6 late in the season. The following presents the relative percentage of ducks harvested at ADWMA during the waterfowl season:

Species	Percentage of Bag
Mallard	35
Green-winged teal	30
Gadwall	15
Pintail	13
Wigeon	5
Others	2

Surveys of "Waterbird Nesting Colonies" during 1999 yielded the following data:

Species	Number of Nesting Birds
Tri-colored Heron	60
Snowy Egret	50
Great Egret	50
Black-crowned night Heron	10
White Ibis	400
White Faced/Glossy Ibis	10
Roseate Spoonbill	50
Forster's Tern	250
Black Skimmer	900
Gull-billed Tern	350

Mineral Activities

Because of severe erosion being caused by mineral related vessel traffic in Campground Pass at the Wax Lake Outlet (WLO), St. Mary Land Company agreed to begin directing such vessels to the channel (Crewboat Channel) immediately north of Campground Pass. Further, St. Mary Land Company agreed to install additional houseboat mooring pilings at WLO and to dredge and deposit material to repair the eroded bank line and to elevate the tent campground at WLO. To initiate the process, St. Mary Land Co. instructed its consultant (Fenstermaker & Sons) to prepare plats to assist the Department in getting the necessary Corps of Engineers permit to do the proposed work.

Sonat Exploration GOM, Inc. conducted wheel washing of Amerada Pass at the Main Delta from channel marker 47 in Atchafalaya River westward to the proposed site of its Well No. 2 (State Lease 5097), west of its existing No. 1 Well. The No. 2 Well is being drilled as a development well into the same zone.

Other Activities

•Dr Paul Leberg and a graduate student (Julie Waits) from the University of Southwestern Louisiana began a research project involving the release of the feral house mouse (*Mus musculus*) at various locations on the Main Delta. Among other things, the hypothesis that "captive bred mice" will fair as well on new dredged material islands as "wild trapped mice" is being tested.

•ADWMA staff assisted U.S.D.A. Animal Damage Control operations/field staff in collecting 23 white pelicans to determine if white pelicans serve as a host to a parasite that is infesting catfish in farm ponds in St. Martin Parish. Apparently, the parasite is causing considerable mortality in pond-reared catfish in that parish.

•Pete Juneau, New Iberia Office Safety Coordinator, conducted a detailed "safety audit" of ADWMA headquarters and appurtenant structures. His findings were generally favorable; however, he did make a few recommendations to enhance safety conditions at these facilities. Many of his recommendations (e.g., strategic placement of safety signs and replacement of certain fire extinguishers) were implemented.

•ADWMA personnel accompanied Mr. Ryan Uhlich, a Risk Management Contractor, in a routine inspection of the status/condition of the crewboat Atchafalaya, the tugboat Yesso, and the various barges located at the Main Delta. He identified no major deficiencies on any of the vessels.

•Mr. Frank Frazier, a Risk Management consultant, inspected the two 50-gallon- capacity hot water heaters at the Main Delta and found them to be "properly vented".

- ADWMA staff accompanied Ms. Joan Adams in a reconnaissance of tent camp sites on the Main and WLO Deltas. Ms. Adams was advised that tent campers would begin to be required to have "portable containers" for defecation and urination. Ms. Adams advised that St. Mary Parish would probably begin requiring the installation of "priveys" on these campsites, but would formally advise us of any such requirements in writing.

Isles Dernieres Barrier Islands Refuge

On May 6, 1999, the Louisiana Wildlife and Fisheries Commission adopted an Emergency Rule establishing the "Isles Dernieres Barrier Islands Refuge". This rule transferred three islands (Wine, Whiskey, and Raccoon), which were formally within the now defunct Terrebonne Barrier Islands Refuge, and combined them with East and Trinity Islands (recently donated to the Department) in the formation of the new Isles Dernieres Barrier Islands Refuge. That rule set aside approximately 35 acres on Trinity Island and a houseboat mooring site in California Canal (on that Island) for public usage. Concomitantly, the remaining area (some 2000 acres) of the five islands would be restricted from public access and would be reserved for nesting colonel and wading birds.

Dave Soileau met with Mr. Arthur Long of the Louisiana Department of Natural Resources (LDNR) and Mr. Harold Lapeyre (Terrebonne Parish Councilman) in Chauvin to discuss the possibility of establishing a "parish park" on the Trinity Island Public Use Area. Mr. Lapeyre appeared to be very interested in the idea and advised that he would be coordinating with House Speaker Hunt Downer and Parish Council President Barry Bonvillain to pursue the matter.

Management and Restoration

In meetings with LDNR personnel and contractors selected to provide vegetative plantings on East, Trinity, and Whiskey Islands, Greg Linscombe was successful in getting all participants to agree not to plant vegetation on "winnowed sandy areas" where shell fragments have become exposed. Those areas are usually the most attractive sites for nesting seabirds and shorebirds, and the Department anticipates rapid colonization by these birds as a result of the dramatic increase in surface area of the islands. However, conveying the proper planting protocols to selected contractors was much easier than getting their employees to properly carry out these protocols. Nevertheless, planting of these islands was generally done correctly.

To date, the entire perimeter of Trinity Island has been posted (some 200 posts) to identify areas where public access is prohibited and to identify the approximately 35-acre area being reserved for public use.

Recognizing the need to continue posting and to provide routine monitoring of the islands, the Department began to explore the possibility of acquiring a large boat or barge to move personnel and supplies to and from the mainland. The cost of acquiring a custom built boat (7 feet wide by 25 feet long) exceeded available funding. Examination of several available seismic barges proved to be unsatisfactory also, either due to cost or lack of quality of the barges examined. Nevertheless, two 200-horsepower Mercury Engines and hydraulic jack plates were acquired with available Federal funding in anticipation that a vessel/hull would eventually be acquired.

Department personnel lobbied heavily for the inclusion of a "Phase-2 Breakwater Project" at Raccoon Island into CWPPRA Priority Project List No. 9. A " WVA" field reconnaissance to Raccoon Island appeared to impress attendants with the success of the "Phase 1 Breakwaters" on Raccoon Island. At this point, the Phase 2 project is rated 4th out of a total of 49 projects being reviewed.

Surveys of "Waterbird Nesting Colonies" during 1999 yielded the following data:

Wine Island	**Number of Nesting Birds**
Brown Pelican	220
Laughing Gull	4,000
Sandwich Tern	12,000
Royal Tern	8,000
Black Skimmer	1,300
Whiskey Island West Sand Spit	
Black Skimmer	1,500
Raccoon Island	
Brown Pelicans	3,700
Tri-colored Heron	300
Reddish Egret	10
Snowy Egret	300
Great Egret	750
White Ibis	75

Roseate Spoonbill	60
Laughing Gull	12,000
Sandwich Tern	9,000
Royal Tern	7,000
Black Skimmer	5

East Island
None

Trinity Island
None

Pass-a-Loutre Wildlife Management Area
Pass-a-Loutre Wildlife Management Area is composed of 100,000 acres of marshlands at the mouth of the Mississippi River in Plaquemines Parish.

Marsh Management and Restoration
A total of 25 sediment diversion projects have been constructed to combat extreme marsh loss rates in the Mississippi Delta system. Major emphasis is directed at maintaining existing projects to ensure that sediment delivery to the adjacent open water areas is continued. Marsh enhancement projects that were confirmed during the 1998-99 fiscal year are as follows:

- A project to deposit spoil material resulting from the dredging of South Pass by the Corps of Engineers began. The project entails construction of miniature barrier islands for protection and enhancement of the western portion of the WMA. Additionally, deposit spoil material will be used to fill in the northern half of the reservoir.
- The sweeping of 7 existing sediment diversion projects began with four completed and other three to be done by August 1999. The project is being funded through CWPPRA.

A total of 58 white tailed deer were harvested during the archery-only season. Hunter success was calculated at 1 deer per 12.7 hunter efforts. A total of 268 alligators were also harvested during the September alligator season with an average size of approximately 6 ft., 3 in. Waterfowl hunters on the area continued to have excellent success throughout the season due to excellent habitat conditions. Waterfowl success ratio was calculated as 3.11 ducks per hunter effort. Gadwall, Green-winged teal and Pintail were the most abundant species harvested.

Salvador Wildlife Management Area
Salvador Wildlife Management Area, located along the northwestern shore of Lake Salvador in St. Charles Parish, is comprised of approximately 30,000 acres of fresh and intermediate marsh which produces ideal habitat for waterfowl and alligators. A sizeable deer herd is also present. It is anticipated that the Davis Pond Freshwater Diversion Project, when implemented, will maintain marshes and eliminate the potential for saltwater intrusion. The Department has worked closely with the Corps of Engineers to ensure that coordination continues on this important project.

Marsh Management and Restoration
Marsh enhancement projects are primarily aimed at reducing shoreline erosion rates which result from two large open water systems bordering the south and east portions of the management area. A significant breakwater system has been constructed, and is functioning as anticipated in the Netherlands area for the prevention of Lake Catouatche from further eroding into this section of this WMA.

During FY 1998-99 the Department continued coordination with the Corps of Engineers and the La. DNR for implementation of the Davis Pond Freshwater Diversion project. By March 1999, 90% of the project was complete. The Salvador headquarters facility is being utilized by various Department personnel and other State and federal agencies for pre-project monitoring activities.

The Department with the National Marine Fisheries Service and the Department of Natural Resources utilized hydrologic dredge material from the lakeshore bottom to rebuild a 100 acre section of the southern WMA shoreline.
A tremendous water hyacinth problem continued in the area during fiscal year 1998-99 . Approximately 5,000 acres of hyacinth was controlled by surface crews.

Approximately 200 deer are harvested annually on the management area. Waterfowl populations and hunter success were above average during the 1998-99 season. A success rate of 1.67 ducks per hunter effort was reported in 1998-99. Lesser Scaup Ringneck and Blue-winged teal were the primary waterfowl species harvested.

A total of 20 of wood duck boxes on the area were checked and 48 ducks were produced.

Land Acquisition
The Department, in coordination with the Corps of

Engineers, U.S. Fish & Wildlife Service and the West Jefferson Levee District, conducted a series of meetings during FY 1998-99 to develop a mitigation project to compensate for impacts associated with the West Bank and Westwego to Harvey, La., hurricane protection project. The mitigation project entails acquiring approximately 1,000 acres of bottomland hardwood and swamp located in the northwest portion of the Salvador WMA. This project is in the final stages.

Timken Wildlife Management Area

The Department entered into a long term lease with Orleans City Park Improvement Association last year for an area previously known as Couba Island which contains approximately 3,921 acres. The Department's plan for regulating these newly acquired properties will be similar to the Salvador Wildlife Management Area which is located to the immediate west of this new acreage. Sportsmen can plan on utilizing the area during the upcoming 1998-99 season. The Department's management practices will concentrate on enhancing habitat for waterfowl and resident wildlife such as white-tailed deer. Additionally, the Department will work with other agencies for projects to reduce the erosion along the southern boundary of the management area. The Department's first emphasis will be on reducing the water hyacinth problem in the interior ponds which ultimately shade-out and reduce submerged aquatic vegetation which provides nursery areas for fisheries and waterfowl food plants. Additionally, the Department will work with Orleans City Park Improvement Association in an effort to utilize the area as an educational tool. During 1998-99, ponds and waterways were treated for the control of water hyacinth in order to encourage waterfowl food production.

Pointe-au-Chien Wildlife Management Area

Pointe-au-Chien Wildlife Management Area is comprised of approximately 30,000 acres of marshlands. Marsh types vary from fresh to salt. The area provides habitat for waterfowl but is gradually changing to a more saline environment conducive to marine organisms.

Marsh Management and Restoration

The area has experienced extreme marsh loss rates in recent years. Efforts directed to offset this trend are primarily aimed at marsh management projects utilizing levees and water control structures. Two projects, Grand Bayou and Montegut, have stabilized salinities and water levels on approximately 8,000 acres. The Montegut unit achieved a partial drawdown during fiscal year 1998-99, resulting in excellent habitat conditions and maintenance of salinities below 5 parts per thousand. The Grand Bayou unit has achieved a reduction in salinity levels which has increased aquatic vegetation in the unit.

The Department is coordinating with CWPPRA representatives on the Grand Bayou project. The proejct entails the introduction of freshwater from the Intracoastal Waterway, physical modifications to reduce saltwater intrusion and the construction of water control structures to manage water levels and salinities.

The management area experienced a poor dove season due to the flooding of the management areas millet crop.

Waterfowl hunting success was excellent in 1998, with an average of 3.58 ducks per hunter effort. Lesser Scaup, Green-winged teal and Gadwall were the primary waterfowl species taken.

A total of 20 wood duck boxes were newly-erected on the area, but only 4 were utilized during FY 1998-99. A total of 16 ducks were produced.

Maintenance and operation of the water management units continued. The Department of Natural Resources is responsible for the maintenance of the Montegut unit, but due to a lack of funds LDWF has been conducting maintenance on this unit. Additionally the Grand Bayou unit was to be maintained by Lafourche Parish Levee District, but evidently due to a lack of funds no maintenance has occurred on this unit. The Department approved a capital outlay fund to provide a parking facility and boat launch for sportsmen using the Grand Bayou Management unit.

Lake Boeuf Wildlife Management Area

In December 1998 the Department acquired 789 acres from the Conservation Fund, a Maryland non-profit coporation. Lake Boeuf Wildlife Management Area, as it is known now, is composed of freshwater marsh and cypress swamp located in Lafourche Parish south of Lake Boeuf. Fishing and waterfowl hunting are the predominant recreational activities on the area due to the fact that the area is only accessible by boat.

Mineral Program

The mineral program on coastal Department properties under the jurisdiction of Fur and Refuge Division reviewed and evaluated 38 projects during 1998-99. Projects were individually reviewed and evaluated to ensure that the resulting activity was compatible from both an environmental and public usage viewpoint. Fees generated from these projects which include mineral royalties, right of way, surface leases and seismic fees totaled $5,571,132.

SPECIES RESEARCH AND MANAGEMENT PROGRAMS

A team of 11 biologists administers Alligator, Furbearers, Waterfowl, Watchable Wildlife, Amphibian and Reptile, Estuarine Fisheries, and Pond Culture programs.

Alligator Program

Louisiana's alligator program is a Fur and Refuge responsibility housed primarily at Rockefeller Refuge, the staff of which coordinates the majority of the state's alligator conservation. The program consists of two complex segments, research/management of wild population and a statewide farm/ranch research/management program. The program pays its way through self-generated funding which includes sales of alligator hunting licenses, tag fees and severance taxes on hides.

Alligator nest density projections for the 1999 coastal aerial survey were the second highest recorded since the project was initiated in 1970. High nesting levels are associated with optimal water levels and habitat, which enhance nesting effort. The coastal survey is a very important tool which has enabled the Department to authorize the harvest of thousands of alligators annually since 1972.

The annual wild alligator harvest (September 1999) produced approximately some 34,000 alligators with a base value of over $8 million. At the end of the 1999 calendar year, there were 65 licensed alligator farms/ranches in Louisiana. Statewide farm/ranch inventory, or number of live alligators, as of December 1999, was approximately 545,500. The 1998 harvest (September 1998-August 1999) on farms/ranches reached 150,000 with a base value of $12 million.

Release of juvenile alligators in the wild to compensate for the collection of eggs is administered on an annual basis by Fur and Refuge Division personnel. The release in 1999 amounted to over 44,000 alligators. The release back to the wild on these areas was carefully done, with all released alligators being measured, marked, tagged, and sexed. Preliminary re-trapping and harvest data indicate that farm released alligators grow at least as well as, and usually better than, their wild counterparts. Long term follow-up on the status of these farm-released alligators and comparison to wild tag returns will allow further evaluation of the program. Survival of farm-releases appears to be good.

Inventory methods, harvest regulations, tagging requirements, reporting requirements, and a complex computer program are continually upgraded to regulate and monitor harvest of surplus alligators in Louisiana and distribute the kill, in proportion to existing populations, over the area open for harvest. New vegetative maps of wetland types (fresh, intermediate, brackish, saline, marshes and swamp habitat) were utilized to calculate hunter quotas for wild alligator harvest tag allotments. Intensive alligator nest counts were conducted on selected marshlands along the coast and average acres per nest calculated.

Over 2,750 "re-trapped" farm-released alligators were harvested in September 1999, and data evaluation is underway on sex ratios and lengths of harvested alligators. Processing facilities were checked for "re-traps" of alligators released from farms or previously tagged in the wild. Several nine- and ten-foot size class alligators were harvested in 1999, which had been released from alligator farms and survived seven-eight years. Continuation evaluation of survival of farm releases is ongoing.

A study was initiated in September 1998 to evaluate mercury levels in alligator meat from wild caught samples. All mercury levels were low, and consumption by humans should pose no health risk. The results were published in a peer-viewed journal, the Bulletin of Environmental Contamination and Toxicology.

Ten new "unitized" (1 male with 1 female) breeding pens were constructed and stocked in fiscal year 1992-93 at Rockefeller. Known breeding females were captured at nests; experiments are being conducted to evaluate reproductive performance in the

absence of intraspecific social competition, as well as new diets. Results have been disappointing thus far. Although five pairs did nest in 1999, hatch rates remain low.

A long-term study on natural sex ratios of alligators/nest temperatures was initiated in collaboration with the University of North Dakota. A pilot study in 1995 yielded excellent results with newly developed temperature recorders; and has been expanded in recent years. In 1997, 1998, and 1999 forty recorders were placed in nests at Rockefeller. Data are being prepared for a manuscript to be submitted for publication.

March, April, and May average ambient temperatures are correlated with the time of alligator nesting, warmer temperatures bringing about earlier nesting effort. In 1999 nesting peaked in early-mid June with most eggs being laid between June 3-June 17. These studies will continue annually and are used to predict peak nesting times, critical information which licensed alligator farmers and landowners use to coordinate egg collection efforts.

The 1998 annual aerial nest count was accomplished on a 2,000 acre study area on Rockefeller. Nesting effort is related to water levels and salinities for the months of March through June. Over the last 10 years, alligators have utilized 10 to 31 acres per nest. In 1999, one nest occurred per 11.23 acres, a better than average nesting effort due to optimum water levels and environmental conditions.

A study was initiated in 1999 on post hatching growth of alligators as related to time of egg collection. Three wild clutches were split, with half the eggs being collected early (and being incubated at "optimum" temperatures artificially early) and the other half left in the wild. These were collected near hatching. Growth rates between the two groups will be monitored this year.

A study was initiated in 1984 to research the endangered Chinese alligator on Rockefeller. The purposes were to develop culture techniques and attempt successful captive propagation for this very rare species. One breeding pair acquired in 1984 is housed in a semi-natural enclosure. Nesting was accomplished in 1999 with a clutch size of 22, of which 19 hatched. The hatchlings are being raised by the LSU Medical Center's Department of Biochemistry (Dr. R. Coulson) following research on growth in this species.

A successful nuisance alligator removal program was conducted on Rockefeller Refuge during September 1998. Nine hunters removed their quotas of alligators (81 total) during a five day period. The largest measured 12'6" (472 lbs.). The overall average length was 8.03 feet.

The alligator research program on Marsh Island Wildlife Refuge continued. Since 1986 over 11,478 alligators have been harvested from Marsh Island. All alligators were sold whole to the highest bidder. Data analysis continues on sex ratios, size class frequency distribution, production rates and habitat utilization. Other alligator research being conducted on Marsh Island includes nest counts, night counts and tagging and release of alligators for growth rate estimates. Approximately 4,248 farm raised alligators and 8,947 hatchlings have been released since 1989 to assess growth and survival rates.

The experimental harvest of alligators on Salvador and Timken WMA's continued during 1999. In 1996, Timken was incorporated into the Wildlife Management Area (WMA) program. Timken WMA is directly adjoining Salvador WMA and was subsequently incorporated into the Salvador experimental alligator harvest and research programs in 1996 and has continued through 1999. From 1991 through July 1999 a total of 3,444 alligators were harvested on these areas averaging 6.4 feet in length. Approximately 400 and 57 alligators have been harvested annually from Salvador and Timken WMA's, respectively. The emphasis of this harvest has been to collect reproductive information to facilitate population estimation. This data will be analyzed and a new harvest plan developed for subsequent years. Other alligator research presently being conducted on Salvador and Timken WMA's include nest counts, night counts and tagging and release of alligators for sex ratio, growth rate and survival rate data. Over 4,700 wild alligators have been captured tagged and released and more than 2,600 hatchlings have been released on these areas.

Furbearer Program

Fur and Alligator Advisory Council

The Fur and Alligator Advisory Council completed its 13th year of operation in June 1999. The Fur and Alligator Public Education and Marketing Fund was designed to support programs to ensure a sta-

ble future for the state's fur and alligator industry. The Council and it's special fund exist because of serious problems facing Louisiana's fur trappers, alligator hunters and farmers, and major coastal landowners. The two major goals of the Council are: (1) education of the public concerning the role of trapping in wildlife conservation and the sustainable-use of the alligator and (2) market stabilization and enhancement for Louisiana's fur and alligator products. See the 1998-99 Fur and Alligator Advisory Council Annual Report for a summary of projects.

National and International Issues

Division staff continued to represent the Department and the International Association of Fish and Wildlife Agencies (IAFWA) at numerous meetings concerning the international effort to standardize trapping systems for furbearers and to monitor and develop strategies to counter animal rights activities. Currently two staff members participate on the IAFWA Fur Resource Technical Subcommittee. This committee represents the 50 states and Canada on various issues pertaining to furbearer management. Topics include EU fur regulation, ISO trap standards, National Trapper Education Program, Best Management Practices for trapping, trap evaluation research and other issues. During Fiscal Year 1998-99 a meeting of the technical subcommittee was hosted at Rockefeller Refuge. Various subgroups of the subcommittee met at a variety of locations as well.

The Division continued to provide compilation of fur harvest data for the United States as requested by the IAFWA. Louisiana has served as a clearing house for this information for the past 11 years. This information was published in a fur harvest document by the Ontario Ministry of Natural Resources as well as in a 10-year wildlife status summary completed by the U.S. Forest Service. A document entitled "U.S. Fur Harvest (1970-1992) and Fur Value (1974-1992) Statistics by State and Region" was compiled for the IAFWA's Fur Resources Committee in June 1994 and is updated periodically.

Monitoring Fur Harvest

Various projects are conducted annually to monitor furbearer harvest distribution and total harvest. Each year fur buyers and dealers are required to submit reports providing information on pelts purchased by species and parish of harvest. Annual audits of all fur dealers provide a record of total pelts by species shipped from Louisiana. Otter and bobcat possession tags provide data on timing and locations of all bobcat and otter harvested in the state. These tags are necessary to insure that only La. otter and bobcats are tagged with federal export tags (a federal requirement for out-of-country shipment).

A total of 140,759 furbearer pelts valued at $452,334 were harvested during the 1998-99 trapping season. In 1998-99 fur prices and harvest were dramatically lower than the prior year. The harvest of nutria decreased from 359,232 to 114,646 while the price decreased from $5.17 to $2.69. The majority of the nutria harvested in 1997-98 were marketed in Russia and collapse of the Russian economy in September 1998 greatly reduced the demand for nutria pelts this past trapping season.

Nutria Damage

During May and December 1993 a survey was conducted to assess the impact of nutria feeding activity in the Barataria-Terrebonne Basin. This project was funded by LDWF and the Barataria-Terrebonne National Estuary Program. Ninety-one impact sites, affecting 15,500 acres, were located and mapped. Recovery of damaged areas, between May and December, was less than expected. Additional surveys were conducted in western Terrebonne Parish in spring 1995 and in the Caernarvon Freshwater Diversion Study Area in May and December 1995. The entire Barataria-Terrebonne Basin was surveyed in March/April 1996. More than 20,000 acres of marsh was damaged by nutria herbivory along the transects flown in 1996.

Coast wide nutria herbivory surveys were conducted in the spring of 1998 and 1999. These surveys represented the first attempt at quantifying the impact of nutria herbivory on a coast wide basis. North-South transects were flown throughout the fresh, intermediate and brackish marshes of coastal Louisiana. Portions of Cameron, Calcasieu, Vermilion, Jeff Davis, Iberia, St. Mary, Terrebonne, Lafourche, Jefferson, Plaquemines, St. John, St. Charles, St. Bernard, Orleans, St. Tammany and Tangipahoa Parishes were included in the survey. A total of 204 sites were visited, 34 of which were considered recovered and 170 with identifiable nutria herbivory impacts in 1998. An estimated total of 23,960 acres was impacted by nutria feeding

activity along the transects. In 1999, all previously identified damaged sites (170) were visited and reevaluated. A total of 184 sites were visited, 34 of which were considered recovered and 150 with identifiable nutria herbivory impacts.

Of the 150 sites, Terrebonne Parish contained 62 sites (41percent) and 11,101 damaged acres (41percent). Lafourche Parish accounted for 22 sites (15percent) and 5,166 acres of damaged marsh (18.9percent) . Twenty-one sites (14percent) and 5,109 acres (19percent) were located in Jefferson Parish. Plaquemines Parish accounted for 19 sites (13percent) and 2,920 acres (11percent). A total of 8 sites (5percent) and 910 damaged acres (3percent) were found in St. Charles Parish. Smaller amounts of damaged wetlands were located in Cameron, St. Bernard, St. John, Iberia, St. Tammany and Orleans Parishes. Only three parishes surveyed contained no nutria herbivory damage, Calcasieu, St.Mary and Vermilion. As in 1998, Terrebonne, Lafourche, Jefferson, Plaquemines, and St. Charles continue to be the parishes most affected by nutria herbivory in 1999. Coastal marshes in Southwest Louisiana had relatively few damaged sites as compared to Southeast Louisiana.

Although it is difficult to extrapolate or expand from these survey results to a coast wide estimate of nutria herbivory damage, it is obvious that total acres impacted are probably 3 to 4 times larger than the area estimated by this survey. Additionally, there were many survey miles where we observed obvious nutria herbivory activity but marsh conditions did not warrant a "damage" classification. These areas, should however, be closely observed during future surveys.

Nutria herbivory is playing a major role in the coastal marshes of Louisiana. Direct vegetation removal contributes to permanent loss of vegetated wetlands; however, vegetative loss is not the only impact observed. Nutria are currently, and are suspected to have historically, played a major role in affecting plant species composition throughout the coast. Of great concern is that only a small fraction of damage sites have recovered since our initial surveys in 1993. Most areas identified during those initial surveys are still being impacted in 1999. These fragile wetlands may not be able to withstand this continued stress in years to come.

Survey results strongly support the need for continued development of a trapping system which will facilitate significantly higher nutria harvest. The Louisiana Fur and Alligator Advisory Council will continue to conduct pelt marketing projects to encourage improved prices to trappers.

Nutria Meat Marketing

State and federal agencies, reviewing the results of aerial surveys, considered and approved a five-year Coastal Wetlands Planning Protection and Restoration Act (CWPPRA) demonstration project. The project entitled "Nutria Harvest and Wetland Demonstration Project" (LA-2, PTV-5) was approved as a part of the 6th Priority Projects List (PL-101-646). This project was authorized as a demonstration by the CWPPRA Task Force on April 24, 1997. The project is being conducted by the LDWF and includes three major components: 1) plan, develop and conduct nutria meat marketing activities, 2) conduct a coast wide nutria herbivory survey to assess the extent of habitat damage, and 3) provide incentive payments to trappers and nutria meat processors.

Nutria meat marketing activities were initiated in January 1998. The goal of the project is to increase the value of the nutria by creating a market for the human consumption of the meat. The marketing plan includes the following broad categories: 1) identify potential local, national and international markets, 2) identify and develop nutria meat products, 3) evaluate processing costs and product price structure, 4) develop, evaluate and distribute recipes, and 5) develop market specific promotional strategies. Local marketing activities conducted during 1998-99 include sponsorship of a nutria category in two culinary contest, participation at the Louisiana Restaurant Association Food Show and numerous local events where nutria meat was served to the public for tasting. Efforts to develop export markets into Asian countries continue.

Nutria are herbivorous, eating only the roots and stems of plants. Their meat is high in protein (22.1 percent) and very low in fat (1.5percent), actually lower in fat than chicken or turkey. The meat is similar in appearance and texture to dark turkey meat. Nutria has a mild flavor, easily enhanced with seasonings. Nutria meat is processed in facilities licensed and inspected by the Department of Health and Human Resources and the meat is inspected by the Department of Agriculture and

Forestry.

If we can make the harvest of nutria more profitable for Louisiana trappers, we will increase trapper effort, harvest more nutria and reduce the negative impacts nutria are currently having on our valuable coastal wetlands. In addition to conducting the marketing work, incentive payments to trappers and to nutria meat processors will be available when trapping season opens in November 1998.

Waterfowl Program

Fur and Refuge Division biologists completed the fifth year of a statewide mottled duck banding program during fiscal year 1998-99. Seven hundred twelve mottled ducks were banded this year and 11,843 from 1994 to 1998. Study parameters include: survival rates, movements, and population size. Banding has occurred on public and private property throughout Louisiana's coastal zone. New "1-800 - number" bands issued by the Federal government are expected to greatly increase band reports from hunters. However, this change in band reporting rates may require several additional years of banding to obtain survival information.

Watchable Wildlife Program

Two fixed wing aircraft surveys (10 hours) and nine helicopter surveys (46 hours) were conducted during the 1998-99 bald eagle nesting season. One hundred ninety-eight young were produced from 140 active territories during the 1998-99 nesting season. Nest surveys began on October 29, 1998 and ended on April 27, 1999. Statewide nest activity peaked in February. Fourteen new nesting territories were identified during the survey. The majority of new nests were found in the Morgan City/Houma/New Orleans area, but new nests were also found in Northeast and Central Louisiana.

A severe tornado hit the Shreveport/Bossier City area in April 1999 destroying the nest tree and nest number 125 at Cypress Lake. It was reported that one adult and two young bald eagles were killed by the tornado.

Brown pelican nest and fledgling production in 1999 was the best on record since the reintroduction program began in 1968. The numbers of nests which produced fledgling pelicans in 1998 was conservatively estimated at 14,400 and 15,990 in 1999. Ten colonies (North Grand Gosier, Last Island, Queen Bess Island, North Island, South Grand Gosier, Wine Island, Martin Island, Brush Island, Grassy Island, and Mitchell Key) produced approximately 23,985 fledgling pelicans in 1999. Since 1971, over 136,552 fledgling pelicans were produced by Louisiana reestablished colonies. Hurricane Georges damaged North and South Grand Gosier Islands in 1998. Hurricanes could negatively impact or destroy prime brown pelican nesting barrier island habitat in the future.

Amphibian and Reptile Program

The Louisiana Reptile and Amphibian Task Force met five times during the 1997-1998 fiscal year, advising the LDWF on issues related to turtle population demographics, environmental toxicants, and on research prospects. During 1997-1998 55 wholesale/retail dealer licenses and 383 collector licenses were sold. License revenues totaled $15,710. Revenues from a one percent excise tax on amphibian and reptile sales produced $14,885 for the Reptile and Amphibian Research Fund.

The USFWS funded a $20,000 Endangered Species Act grant to continue surveys of alligator snapping turtles in southern Louisiana. The USFWS also funded a $9,000 grant to continue evaluation of box turtle populations in southeastern Louisiana.

Research focused on populations and commerce of map and alligator snapping turtles in light of proposed listing of these commercial species under Appendix III of CITES. To date research has supported non-listing of the turtles, although federal interest in the listings continues. Other research quantified data on amphibian distribution within the Florida parishes, and on amphibian and reptile community structure in different habitats.

Public outreach work included publication of an article on the pet amphibian & reptile trade in the Louisiana Conservationist.

Field survey work on 146 days resulted in recorded observations on approximately 5000 amphibians and reptiles. Cooperative research on amphibian and reptile reproduction, feeding, and distribution was conducted at Louisiana State University, Tulane University and Southeastern Louisiana University. The Louisiana Amphibian Monitoring Program completed its second year, with runs of 41 of 62 proposed routes, using 48 volunteers, with 19 species of frogs detected.

Wetland Ecology

Research concerning marsh impacts related to Hurricane Andrew were completed during 1998-99. This research was funded with Dire Emergency Congressional Appropriations. During this fiscal year monitoring of Raccoon Island conditions (vegetation, waterbirds, erosion) were carried out by Dr. Charles Sasser, LSU. His report was entitled "Vegetation Surveys of Raccoon Island 1994-98". Other research conducted with this funding source included: the coastal bald eagle survey, the brown pelican survey, and the Southeast waterbird survey.

Two fixed winged aircraft surveys (10 hours) and nine helicopter surveys (46 hours) were conducted during the 1998-99 bald eagle nesting season. One hundred ninety-eight young were produced from 140 active territories during the 1998-99 nesting season.

Three helicopter surveys (approx. 20 hours) were conducted during the 1999 brown pelican nesting season (4-7-99, 6-11-99 and 6-18-99). The estimated number of nesters during this season was 15,990.

Five helicopter waterbird surveys (approx. 40 hours) conducted in Southeast La resulted in nesting data collected from 295 sites with 23 species present.

During the summer and fall 1997 an aerial vegetative survey was conducted across coastal Louisiana. The goal of this survey was the establishment of an updated coastal vegetative type map. This survey was conducted using a Differential Global Positioning System (DGPS) and software displaying actual real time position layered with stations and transects over a 1993 satellite image on a pen computer. Approximately 8,000 data points were surveyed along north/south transects during 25 days of flying. The coastal vegetative type map had not been updated since 1988 and current data was in demand by all state and federal agencies involved in management of coastal La. This map was prepared with funding from COE, for the Lower Atchafalaya River Study and MMS, for use as part of a Gulf Wide Information System (GWIS). Request for this data continued to increase in 1998 and 1999. The CWPPRA Task Force approved funding to produce 1,000 CDs with digital sets of vegetative marsh type maps dated 1949, 1968, 1978, 1988, and 1997. The 1997 data set will include transects, sample sites, and vegetation data, as well as the vegetative type map. Other data compiled by Division staff for use in GWIS included furbearer relative densities, alligator nest densities, eagle nest sites, and brown pelican and waterbird rookies.

Estuarine Fisheries Program

Rockefeller Refuge continued its fisheries monitoring program in conjunction with various habitat management/restoration strategies. Though the primary goal of the Division is habitat management/restoration, personnel are able to strategically allow ingress and egress of organisms into Superior Canal complex and several management units when habitat integrity will not be compromised.

Since 1972, the Fur and Refuge Division has worked cooperatively with the Inland Fisheries Division striped bass project. Striped bass fry are placed in the Rockefeller nursery until they are on feed. Once on feed, the fry are transferred to culture ponds. The fry are grown out to a length of 1.5 inches in culture ponds, harvested, and stocked into southwest Louisiana river systems. In 1999, the program released 22,916 bass. Of these, 16,520 were released into the Calcasieu River Basin; the remaining 6,396 were released on Rockefeller Refuge. To date, 2,924,290 fish have been stocked in the Calcasieu River system and 1,364,122 in the Mermentau River system.

Rockefeller Refuge staff continue the creel survey effort on Rockefeller. The survey is being conducted in order to generate a better estimate of the amount of biomass being harvested from the refuge by sports fishermen.

Rockefeller Refuge continued sampling in connection with the long-term program to identify and document effects of structural marsh management on marine organisms. University of Southwestern Louisiana fishery personnel are continuing to analyze the trawl samples collected at Rockefeller by LDWF staff and entering data into computer files.

Rockefeller Refuge experienced an extensive fish kill in September and October 1998 following Tropical Storm Frances events. The die-offs were attributed to low oxygen conditions throughout the refuge, and also high salinities in freshwater areas. As a response to the fish kills, Rockefeller staff initiated an effort to restock some of the freshwater

impounded and semi-impounded areas on Rockefeller with Florida-strain largemouth bass. In May 1999 approximately 66,000 fry, obtained from the Department's Booker Fowler Fish Hatchery, were released in the Superior Canal System on Rockefeller. Restocking efforts will continue for several more years.

PUBLICATIONS/COOPERATIVE RESEARCH/TECHNICAL ASSISTANCE/SCIENCE INFORMATION WORK

In addition to publication in science journals, Fur and Refuge Division biologists support research projects of scientists of other resource units, provide extension service to other landowners, and make information available to the public.

Publications

Scientific papers were written on the following topics. The papers were published as conference proceedings or abstracts and as articles in scientific journals.

- Supplementation of farm-raised alligators in Louisiana, USA.
- Mercury levels in alligator meat in South Louisiana.
- Plasma catecholamines and plasma corticosterone following restraint stress in juvenile alligators.
- Hormonal and metabolic responses of juvenile alligators to cold shock.
- Effects of Seismic Operations on Louisiana's Nesting Bald Eagles.
- Effect of airboat and helicopter traffic on nesting bald eagles.

Cooperative Research

Several cooperative studies were undertaken in 1997-1998 with university researchers to further the understanding of alligator physiology.

- Endocrinology studies on effects of CRF metabolism in alligators.
- DNA studies to evaluate social/breeding hierarchy in adult alligators, multiple male parentage, and geographic variation.
- Baseline studies on the immune system of the alligator and its role in nutrition/disease of farm raised alligators.
- Studies on regulatory mechanisms of temperature dependent sex determination in alligators.
- Studies on nesting/hatchling sex ratios naturally incubated in the wild.
- Studies on the development of the brain, cardiovascular system, and auditory system in hatchling alligators.
- "Control" alligator eggs provided to Florida researchers evaluating environmental contaminants that have drastically reduced hatch rates in Florida.

Several cooperative studies were being conducted at Rockefeller Refuge concerning wetlands ecology during fiscal year 1998-99.

- Determining the effects of marsh burning on vegetation and birds at Rockefeller Refuge.
- Determining the relationships of invertebrate abundance and avian utilization to various management strategies employed at Rockefeller Refuge.
- Determine spatial and temporal patterns of plant species invasion and expansion with a major focus on Phragmites australis.
- Study on effects of nutrient levels on above/below ground biomass production. The study will compare semi-impounded and tidal areas.

Food habits of alligator snapping turtles are also being evaluated at Rockefeller Refuge. More than 100 were collected from trappers and lab work is nearly complete, with the exception of one recently acquired sample. Reproductive tracts have also been dissected for correlation, and a manuscript will be prepared for publication pending data analysis. A program is being written to assist in data analysis and data entry will begin soon.

The LSU Wetland Biogeochemistry Institute initiated research to determine the effect of Crude Oil on fresh and brackish marsh and evaluate burning and cleaners as methods of oil removal. The project is located on the Pointe au Chien Wildlife Management Area.

Research continued at the Salvador Wildlife Management Area to determine water movement into flotant marshes and non-flotant marshes. Louisiana State University is conducting the research. Information will be valuable to the Department for management of the area.

Technical Assistance

Marsh management/ marsh enhancement techni-

cal expertise was provided for private landowners in the coastal region. Rockefeller Refuge personnel worked on several major extension activities. They cooperated with state and federal agencies in the continued planning, field investigating and reviewing of projects proposed for the Coastal Wetlands Planning, Protection and Restoration Act. The Highway 82 Freshwater Introduction Project was proposed during fiscal year 1998-99. This project will benefit both refuge and private wetlands in the region. Rockefeller staff also worked closely with the Louisiana Department of Natural Resources on development of the Hydrologic Investigation of the Chenier Plain plan.

Habitat Section

The primary objective of the Habitat Section is to gather and compile data on wildlife and fisheries resources, determine the requirements for conserving the resources, and provide information and technical assistance to governmental entities, industry, and the public. Data are also gathered on the potential impacts of human activities on the resources, providing such technical information to planners and decision makers in advance of execution of projects.

Rockefeller Refuge staff continued working with 3-D seismograph companies in southeast Louisiana to develop work arounds within environmentally sensitive bald eagle nesting habitat. Refuge personnel continued working with Louisiana State University to assess the effects of 3-D seismograph activity and airboat disturbance on nesting bald eagles.

Louisiana continues to lose valuable fish and wildlife resources to development projects of federal, state and local governments and to projects of private enterprise. The Louisiana constitution charges the Department of Wildlife and Fisheries with responsibility "to protect, conserve and replenish the natural resources of the state, the wildlife of the state,...." More specifically, federal, state and local laws and procedures allow the Department to conduct environmental investigations, i.e., the review of proposed projects and determination of possible effects on fish and wildlife resources.

Work during this fiscal year included cooperative efforts with the following proactive government and non-governmental natural resource units: Black Bear Conservation Committee, Groundwater Advisory Committee, Non-point Source Pollution Advisory Committee, Cameron/Creole Advisory Committee, Mitigation Area Review Team, Mitigation Bank Review Team, Geological Review Team, Hydrogeomorphic Modeling (HGM) Working Group, coastal restoration activities with the Governor's Office, environmental roundtables with the Vicksburg and New Orleans Army Corps of Engineers (ACOE) offices, Louisiana departments of Health and Hospitals and Department of Environmental Quality efforts related to pollution and fish contamination, and mitigation banking.

The workload of the Habitat Section is divided into four units: Environmental Investigations, the Louisiana Natural Heritage Program, the Louisiana Natural and Scenic Rivers Program, and the Urban and Watchable Wildlife Program.

ENVIRONMENTAL INVESTIGATIONS

Investigations staff members reviewed approximately 3000 state and federal permit applications this fiscal year. Permits were for projects related to alteration of wetlands, freshwater diversion, hurricane protection, navigation, marsh management, mitigation banks/areas, airport construction, Community Development Block Grants, Farmers Home Administration grants, flood control, solid waste disposal, hazardous waste disposal, hydropower and other types of dam projects, and coastal restoration.

There are numerous government agencies that the Department works with in conducting environmental investigations in cooperation and coordination with U.S. Fish & Wildlife Service and the National Marine Fisheries Service. Most important is U.S. Army Corps of Engineers (ACOE).

ACOE is the principle agency promoting navigation and flood control projects in the state and is the permitting authority nationally for wetlands and adjacent waters. As a construction agency and a permitting agency, ACOE requires fish and wildlife resource data.

The Natural Resources Conservation Service and

the U.S. Forest Service, of the United State Department of Agriculture (USDA), are required to consider the effects of their projects on fish and wildlife resources. These and other USDA agencies frequently require biological resource data during the project decision-making phase.

The Federal Highway Administration, Environmental Protection Agency, Federal Aviation Administration, Farmers Home Administration, Housing and Urban Development, as well as Louisiana Department of Transportation and Development, Louisiana Department of Natural Resources, Louisiana Department of Environmental Quality, and Louisiana Department of Culture, Recreation and Tourism also require fish and wildlife information during project planning and decision making.

The Department also works with private developers and consultants involved in the permit application process with the above regulatory government bodies.

Louisiana Natural Heritage Program

LNHP staff reviewed for impacts on rare, threatened, and endangered (r/t/e) species and exemplary natural communities 2,000 proposed public and private projects. During the same period, we issued 85 scientific collecting, 49 wildlife rehabilitator, and 17 special purpose permits.

The LNHP continued to implement the management plan for Lake Ramsay Savannah Wildlife Management Area. During the year, 200 acres were control burned to benefit habitat for rare plants species and longleaf pine flatwood plant communities on the area. The site provided the location for a wetland delineation course conducted during the year by the US Army Corps of Engineers.

During the year, LNHP staff spent more than 200 field-days in the field conducting surveys on r/t/e species and natural communities. These surveys, along with data from other researchers, provided information for 105 new Element Occurrence Records (EORs) and 1756 updated EORs in the computerized database used by the program. These records were for r/t/e species and exemplary natural communties. During the same period of time, some 441 waterbird nesting colonies were updated in the database.

The LNHP administered federal aid for endangered species through the Section 6 program in cooperation with the US Fish and Wildlife Service. Through this program, the state is reimbursed up to 75 percent of the cost of endangered species research and management. Research conducted during fiscal year 1997-98 included studies on Louisiana black bear, pallid sturgeon, inflated heelsplitter mussel, Louisiana pearlshell mussel, Pearl darter (fish), and alligator snapping turtle. Research is conducted by staff biologists and contracted to university faculty.

Staff also participated in more than 5 Christmas Bird Counts,and administered 45 Breeding Bird Surveys throughout the state. These data are used throughout the United States to determine population trends on both breeding and wintering grounds. Staff also administered 40 statewide Louisiana Amphibian Monitoring Program routes, and conducted night surveys for 11 them. Each is typically conducted 3 times per year. Unlike the bird surveys, these surveys are providing baseline information on the status of amphibians along the routes. The routes will be conducted by the LNHP staff and volunteers annually, and will be used to develop trend analyses for the species encountered. This was the third year such amphibian surveys were conducted.

The Wild Louisiana Stamp, Louisiana black bear license plate, Natural Areas Registry, and Teaming With Wildlife programs were administered by the Natural Heritage Progam during this year. LNHP staff worked closely with the Reptile and Amphibian Task Force by providing information on the status of species of special concern in Louisiana, and provided recommendations to the Task Force on items involving take of certain species of reptiles and amphibians from the wild. LNHP represented the department on the Black Bear Conservation Committee Executive Committee. Also, staff represented the department on conservation issues throughout the state and the US. For example, we served as members of technical and core teams developed by The Nature Conservancy to develop conservation plans for ecoregions that partially were located within this state. These included the East Gulf Coast Plain Ecoregion, for which a portfolio of sites was developed, and a strategy for biodiversity conservation was written. Additional ecoregions that were worked on, but are incomplete at this writing include West Gulf Coast Plain

Ecoregion and the Gulf Coast Prairies and Marshes Ecoregion. Such plans will identify key target sites needed for the conservation of biodiversity in the ecoregion. Implementation will be spearheaded by The Nature Conservancy. Another means of providing input into conservation issues arises from our review of the proposed projects listed earlier in this section, and review of prescriptions and management plans on Kisatchie National Forest and our own series of Wildlife Management Areas. Staff reviewed some 59 proposed conservation/management plans during the year.

The LDWF was represented by the Natural Heritage Program Coordinator on the Board of Directors of the Association for Biodiversity Information (ABI), an international organization of Conservation Data Centers throughout the western hemisphere that develops regional and multinational products based on Heritage Program databases. The staff member served as Secretary to the organization as well.

During the year, the Natural Heritage Program worked with The Nature Conservancy, US Forest Service, and Department of Defense to develop a Memorandum Of Understanding among them and the LDWF. The MOU outlines a strategy for sharing biological information regarding r/t/e species and ecologically significant areas on Fort Polk, and makes a commitment to working together on conservation issues involving Fort Polk.

Public outreach by LNHP staff included at least 21 presentations at educational facilities and scientific meetings. The staff also was involved with the development of some 21 news releases from the department during the year, and several magazine and newspaper articles focused on conservation issues.

LOUISIANA NATURAL AND SCENIC RIVERS PROGRAM

The Scenic Rivers Program, with its staff of two, has had an outstanding year. They wrote articles for or contributed to publications promoting Louisiana's Natural and Scenic Rivers System in Louisiana Life magazine, The Louisiana Conservationist, a publication by Dal Sanders for the Outdoor Writers Association, the DeLorme Road Atlas (which, for the first time in any outside publication, identifies Louisiana's designated Scenic Rivers) and a number of smaller, local publications throughout the state. They prepared and submitted an grant application to EPA that resulted in our receipt of a $130,500 award in April. They revised the entire Scenic Rivers Book complete with new color maps and made it ready for print, produced and distributed well over 1000 11x17 maps of the Louisiana Natural and Scenic River System and produced and distributed hundreds of informational pamphlets, and gave talks to and/or made field trips with school kids on three separate occasions for the purpose of informing and educating them about the Scenic River Program and the importance of protecting Louisiana's water resources.

The Scenic River staff participated in or initiated nearly 80 enforcement actions. These included cases of illegal dumping, illegal sewage discharge, operating on a Scenic River without a permit, illegal timber harvest, and channel re-alignment. The staff attended a Stream Investigation and Stream Bank Stabilization Training workshop sponsored by the US Army Corps of Engineers in Altus, OK. They also, through routine surveillance, post project inspections and response to complaints, caused the repair of a ruptured natural gas pipeline, the installation of a polymer flocculation system by a landfill, compliance with permit conditions (removal of rebar from rip rap, proper disposal of bridge forms, utilization of adequate sediment protection, etc.) and the clean up of a an asbestos dump. Examples of mitigative measures the staff has required through the Scenic River permit process include: allowing no clearing of right-of -way above directionally bored segments of pipeline crossings of Scenic Rivers; requiring that water used for irrigation or thermostatic testing of pipelines undergo adequate treatment before being allowed to return to our waterways; requiring that special mufflers be used on equipment operated on or near Scenic Rivers; greatly limiting, and at times prohibiting, the use and operation of heavy equipment within 100' of designated Scenic Rivers. The staff issued few, if any, permits for activities on Scenic Rivers without first making some mitigative changes to the original application and/or making some compensatory requirements of the applicant.

The Scenic River staff biologists maintained regular contact with both state and federal Agencies to insure that designated Scenic Rivers are considered in all levels of planning and permitting. These Agencies include USCOE, USDA, NRCS, FEMA, USFWS, USFS, EPA, DEP, DEQ (LA and AR),

DOTD, DHH, CRT, DOA, LAF, and Office of State Lands. They also worked closely with city planners, police juries, mayors, and local interest groups and organizations throughout the state. Cooperation and corroboration has ranged from making written contributions to management plans to requiring permits for certain activities and enforcing permit conditions.

The Scenic River staff has made it abundantly clear through their efforts in 1998 that Louisiana's Natural and Scenic Rivers are indeed treasures of this state and that they are to be given every consideration as State protected priority areas in all aspects of planning and use.

1. # scenic river permit applications received: 42
2. # scenic river permits issued/denied: 32/4
3. # of stream miles surveyed and # of unique streams visited: 369/36
4. # of enforcement actions taken/initiated: 19
5. # of field trips taken other than routine surveillance: 81
6. # of meetings with permit applicants/user groups: 67

1999 was a productive year for the Scenic Rivers Program. We have been involved in a wider range of activities than ever before. From public outreach and education to the development of tools to assist fellow regulators in their efforts to help protect Louisiana's 1700+ miles of designated Natural and Scenic Rivers, we have been quite busy.

Prior to and during the 1999 Legislative Session, we worked very hard to provide our law makers with the information they needed to make sound decisions regarding the Scenic Rivers Act. We compiled data and wrote reports for the Legislature in accordance with Senate Concurrent Resolutions No. 4 & 52 (requesting Departmental recommendations needed to protect and maintain Bayou Liberty and the Tchefuncte River (from Hwy.22 to Lake Pontchartrain)) in St. Tammany Parish and held a public hearing on January 7, 1999 in Slidell. We also met with Legislators, members of their constituencies, and legislative aids in an effort to assist them in their fact finding and assessment of the various needs and possible solutions to problems on several Scenic Rivers. This included considerable work on the issue of houseboats dumping untreated sewerage into our Scenic Rivers.

In the area of public outreach, we gave Scenic Rivers presentations to the Civic Association of the towns of Grosse Tete, Rosedale, and Maringouin and to the Little Tchefuncte River Association. We compiled a list of local and statewide conservation organizations, and user groups/contacts associated with the various Scenic Rivers in order to facilitate the exchange of information, participation and cooperation between the Program and the interested public. We have also participated in general wetland education efforts by various public and private entities, schools, and local governing bodies.

In order to assist other regulators in there efforts to insure the protection of our Scenic Rivers, we worked with personnel of the Department of Natural Resources to produce a current and accurate GIS layer and data set depicting the streams, rivers and bayous included in the System. This data set will be used by the Department and other regulators to make decisions about the need for Scenic River Permits and the potential for impact to Scenic Rivers of various proposed projects throughout the State. Personnel of the program also participated in a survey of the federally threatened ringed sawback turtle (*Graptemys oculifera*) on the Bogue Chitto River conducted by the Louisiana Natural Heritage Program. Information gained in this survey may assist not only to protect the ringed sawback, but also the Bogue Chitto River. We also provided the US Fish and Wildlife Service with information on the presence of an endangered mussel found in Bayou Bartholomew.

We have continued to work with our Enforcement Division to ensure that the laws, rules and regulations of the Scenic Rivers Act are adhered to. We have reported 19 suspected violations to the Enforcement Division and followed up by assisting them in their investigation when needed. Among those violations acted on in 1999 were illegal timber harvest, illegal dumping, operating on or adjacent to Scenic Rivers without a permit, and illegal gravel mining. One mining operation was shut down and a number of citations were issued for various other violations. We have also accompanied Agents in the investigation of numerous other complaints.

Finally, we have continued to make tough decisions in our permitting process. We have denied the issuance of four permits because the proposed activities were not compatible with the requirements of the Act and their potential and/or immi-

nent impacts were not considered acceptable. Those permits that were issued, almost invariably were issued only after mitigative and/or protective measures were incorporated into their designs to insure that the ecological integrity and scenic values of the respective Scenic Rivers were preserved. A total of 32 permits were issued.

URBAN WILDLIFE UNIT

The Habitat Section, Urban Wildlife Program has been operating for 5 years. The program is staffed by one biologist and is supported by funds available within the Habitat Section, but has no funds specifically allocated to the program. The program biologist serves two functions within the Department; urban wildlife habitat conservation and education, and statewide coordinator of nuisance animal control. The program provides an extension service type role, educating homeowners and other landowners in urban, suburban and residential areas on wildlife issues. These issues include habitat conservation in developing areas, landscaping to attract wildlife, and other wildlife related topics. Various publications such as the book of nest box plans have been developed and are available to the public. Nuisance animal control includes overseeing the nuisance animal control permit system and the Nuisance Wildlife Control Operator (NWCO) program.

The program provides assistance to private and corporate landowners interested in enhancing wildlife habitat on their property. This is done by serving as a consultant who provides information on the habitat requirements of desired species and how to manipulate habitat to encourage those species. The biologist prepares and presents various slide presentations and gives talks to groups regarding urban wildlife topics. The groups include civic and rotary clubs as well as school classes and professional organizations local garden clubs.

The program utilizes the Waddill Outdoor Education Center in Baton Rouge for various urban wildlife projects and research including a backyard wildlife habitat demonstration site, developed to show homeowners how to landscape with native plants to attract wildlife. Other projects at the site include nest box research and a new bat house research

The Urban Program issues nuisance animal control permits and Nuisance Wildlife Control Operator permits. In 1998, 138 nuisance animal control permits, and 27 Nuisance Wildlife Control Operator permits were issued.

OFFICE OF FISHERIES

The Office of Fisheries is comprised of two divisions, Marine Fisheries and Inland Fisheries.

MARINE FISHERIES DIVISION

The Marine Fisheries Division is charged with management of the full range of Louisiana's marine resources. Division responsibilities are categorized as Fisheries Management Programs and Habitat Protection Programs.

FISHERIES MANAGEMENT PROGRAMS

Fisheries Management Programs include Shellfish Management, Mollusc Management, Finfish Management, and the Lyle St. St. Amant Marine Laboratory.

Shellfish Management

Shellfish Management

The Marine Fisheries Division continued its long-term fishery independent trawl sampling throughout coastal Louisiana. Data from these samples were used to set season frameworks for both the fall and spring inshore shrimp seasons and the winter offshore shrimp season. Additionally, these same data were used to recommend season extensions and special shrimp seasons.

Shrimp

The 1998 Fall Shrimp Season opened in Louisiana's inshore waters on August 16, 1998 and remained open until December 20, 1998. Total shrimp landings for all of 1998 were above those of the last five years. The Secretary extended the season in Breton and Chandeleur Sounds until April 1, 1999 to allow the harvest of pink shrimp which are usually present in that area during late winter and early spring. A few pink shrimp were harvested during this extension, but catches were generally poor. The fall and early winter seabob production was good.

The 1999 Spring Shrimp Season opened in Zone 2 on May 10, 1999. The waters of Breton and Chandeleur Sounds were also opened May 10, 1999. The rest of Zone 1 and Zone 3 opened May 25, 1999. Total shrimp landings through June 1999 were the highest in five years. Inshore brown shrimp production was up as compared to the last three years and above the long-term average.

The Shrimp Industry Review Panel delivered its report to the Legislature in February 1999. By request of the Legislature, the Department started an economic study of the shrimp industry.

Crabs

The Crab Task Force continued to meet and addressed several issues, including limited entry, ghost traps, and crabber/shrimper user group conflicts and crab meat imports. The Crab Subcommittee of the Gulf States Marine Fisheries Commission continued revising the regional blue crab management plan. The Department and LSU Sea Grant cooperated and held a series of workshops across coastal Louisiana on the blue crab resource. Crab landings for the 1998 were 43.4 million pounds and slightly below an average for the last ten years.

Mollusc Management

Oyster

The 1998/99 oyster season on the public oyster seed grounds and the Hackberry Bay and Bay Gardene Oyster Seed Reservations opened one-half hour before sunrise September 9, 1998. The Sister Lake Oyster Seed Reservation was open for a 12 day period only from Oct 5 - Oct. 16, 1998 during the 1998-99 oyster season. An area of the public grounds east of the Mississippi River in the Black Bay area was opened for sacking only as prescribed by Act 46 of the 1992 Legislative Session.

Public grounds in Calcasieu and Sabine Lakes opened one-half hour before sunrise October 16, 1998 and remained open until one-half hour after sunset on April 30, 1999. The Secretary was authorized by the Commission to extend the season to compensate for those days lost due to health closures.

Oyster production for 1998-99 continued on an above average trend, particularly on the public grounds east of the Mississippi River.

Oyster Leasing

During 1999, 30 leases were auctioned, containing

ject for obtaining age, growth, and fecundity data on important marine finfishes.

Work progressed during the fiscal year on black drum, sheepshead, southern flounder, spotted seatrout, red drum, and striped mullet. Personnel obtained fish measurements and otoliths (ear stones) by fishery independent sampling and by sampling the commercial and recreational fisheries. Otoliths were removed from the fishes, sectioned, and examined for annular rings (indicators of age). The latest computer image-analysis technology is used in otolith interpretation.

Cooperation continued with Louisiana State University's Coastal Fisheries Institute (LSUCFI). The Institute continued to provide consultation, and verification of the accuracy of the Laboratory's aging techniques. Institute researchers also investigated new techniques in otolith science and taught these techniques to Laboratory personnel.

During the 1998-99 fiscal year the age analysis of 505 black drum, 1009 red drum, 555 sheepshead, 528 southern flounder, 1362 spotted seatrout, and 908 striped mullet was completed. Ovaries of 57 sheepshead were collected from the commercial fishery and sent to LSUCFI for analysis. Efforts to collect large numbers of gonads of sheepshead from the commercial fishery continue.

Habitat Protection Programs

Habitat Protection Programs include: Environmental Monitoring of the Louisiana Offshore Oil Port (LOOP), the Southeast Area Monitoring and Assessment Program (SEAMAP), Hydrologic Monitoring, Monitoring for Environmental Perturbations, Oil Spill Response, Caernarvon Freshwater Diversion Monitoring, Seismic, and Coastal Wetlands Protection.

Louisiana Offshore Oil Monitoring

Environmental monitoring began in 1978 to measure the environmental impacts of LOOP INC.'s operations to the coastal, estuarine, and marine habitats and biological communities near their facilities. The monitoring program was designed to address specific objectives. These are to (1) obtain seasonal environmental and ecological data so that conditions existing during LOOP's operation can be related to historical baseline conditions, (2) detect any adverse alterations or damage to the environment so that corrective action can be taken as soon as possible, (3) obtain sufficient data to determine causes of environmental damage or alterations so that responsibility can be properly placed, and (4) provide information to evaluate long- and short-term impacts of the project.

The Environmental Monitoring Program also began an internal and external evaluation during 1995-96. The sampling program was suspended by the Environmental Directors in June 1996 pending the outcome of the evaluation process, which was completed in May 1998. Analysis of all data collected from the initiation of monitoring in 1978 will eventually provide for a re-design and update of the program to ensure its compliance with mandated objectives. The Environmental Directors have directed LOTA to compare the LOOP monitoring program with that of the Louisiana Oil Spill Coordinator in coastal Louisiana. That effort continues.

Southeast Area Monitoring And Assessment Program

SEAMAP is an ongoing cooperative program, designed to facilitate the coordinated collection, management and distribution of fishery-independent biological and environmental data by state and federal agencies. The National Marine Fisheries Service provides funds to the states through the Gulf States Marine Fisheries Commission to collect long-term, standardized data on the condition of living marine resources and their environment. Fishery-independent data are those collected apart from a directed recreational or commercial fishery, and are essential to understanding the responses of fishery stocks to exploitation and management measures. Data are collected on fishery stocks that are subject to cooperative state and federal management. The current study area includes marine waters of Louisiana as well as marine waters within the U. S. Exclusive Economic Zone. SEAMAP activities in Louisiana include summer, autumn, and winter trawl surveys conducted in conjunction with zooplankton and environmental resources surveys. Department personnel also participated in developing Gulf-wide priorities and methods for data collection.

Hydrologic Monitoring

The Department began collecting constant records of salinity, water temperature, and tide level in 1958. Data are collected from 15 stations located from the Pearl River to Calcasieu Pass. This total reflects the four new sites installed during 1998-99 to enhance Louisiana Department of Wildlife and Fisheries' coast-wide monitoring network. Processed data are used to support fishery manage-

ment, such as determining the area of suitable nursery grounds and season opening dates for brown shrimp. During 1998-99 this program was conducted cooperatively between the Louisiana Department of Wildlife and Fisheries and the U. S. Geological Survey. Field data are collected by USGS, and finished data are provided to the Department. During the year all sites were upgraded to near real-time (4 hour lag) data transmission capabilities. Data from these locations are transmitted via satellite from the instrument in the field to the USGS office in Baton Rouge and down loaded to the Department's database via the Internet. Both internal and external data requests are filled from this database

Monitoring for Environmental Perturbations

This project, funded under a grant from the National Oceanic and Atmospheric Administration, has the objective of establishing a fisheries dependent monitoring program capable of determining the impacts of adverse environmental/climatological conditions on the fishing patterns and subsequent income of commercial fishers and charter boats. Events such as hurricanes, red tides, floods, oil spills, and the occurrence of oxygen-depleted bottom waters affect the harvest of Louisiana's marine fishery resources and therefore, because of the importance of this industry, the economy of the state. Individual harvesters may be forced to spend additional time and effort in locating targeted species, prevented from working traditional fishing grounds, or prevented from fishing at all. An objective determination of the effects of such events on commercial fishing will allow integration of these events into the existing management regime for those fisheries, and form the basis for rational declarations of emergency. Key components of the project include trip tickets, logbooks, and environmental monitoring. Wholesale/retail dealers use a trip ticket form to document purchases from commercial harvesters. Commercial harvesters and charter boats use logbooks, which identify vessel movement, fishing location and catch. The environmental monitoring segment documents major climatological/environmental perturbations that affect the coast, particularly the offshore hypoxic zone in the vicinity of Jefferson, Lafourche and Terrebonne Parishes. These data are analyzed to determine if changes in effort and fishing location can be documented in relation to known perturbations.

Oil Spill Response

The Department's Oil Spill Task Force continued in 1998-99 to develop and implement plans to protect and restore the State's wildlife, fishery, and habitat resources from the adverse effects of oil spills.

In May 1997, Texaco Pipeline had a 16" line rupture discharging 6517 barrels of oil into Lake Barre in Terrebonne Parish, Louisiana. Department biologists worked with biologists and specialists from other state and federal agencies and Texaco to evaluate injuries that resulted from the spill. That work continued in FY 98-99.

A rupture in an Apache Corp. pipeline was reported on 21 June 1997, and burned on 3 July 1997. All indications were that the line had been leaking for some time, perhaps discharging as much as 2000 barrels of oil into the marsh near Freshwater Bayou. Department biologists are working with other agencies to assess injuries and develop restoration plans. Apache agreed to monitor the recovery of the burned area per agreement with the Louisiana Oil Spill Coordinator's Office.

On 22 September 1998, Equinox Oil Company had a blowout in a well in their Lake Grand Ecaille field near Port Sulphur, LA. Estimated volume ranged from 850 to 1,500 barrels of crude oil. The spill occurred four days before Hurricane Georges passed near the area. Department biologists are working with biologists from other agencies and Equinox to evaluate injuries from the spill. Work on assessment and restoration planning continued through FY 98-99.

Seismic Monitoring

The Seismic program was created in 1939 specifically to protect oysters, fish, shrimp, and other wildlife from injury due to seismic exploration. In FY 1998-99, oil and gas exploration activity plummeted. The section continued however to monitor seismic activity throughout the state. The seismic section promulgated revised regulations in February 1999. These regulations provide opportunity for local input into seismic planning, an appeal process for seismic contractors, and better equipment tagging and clearing procedures.

Coastal Wetlands

In 1998-1999, the Marine Fisheries Division continued to work with the state Wetlands Conservation and Restoration Task Force and the federal Coastal Wetlands Planning, Protection and Restoration Act Task Force in developing projects and strategies for

slowing the rate of coastal wetlands loss in Louisiana.

Extensive fisheries resource monitoring programs continued for both the Caernarvon and Davis Pond Freshwater Diversion Projects. The Davis Pond Project, due to go on line on spring 2001, includes a comprehensive study of project effects on recreational fishing throughout the Barataria Basin.

Marine Fisheries Division personnel continued work on the lease relocation procedure for oyster lease holders that may be adversely impacted by coastal restoration projects.

Division personnel coordinated the award of a National Fish and Wildlife Foundation Shell Marine Habitat Program Grant to improve the habitat for the fisheries of Lake Pontchartrain with new seagrass planting techniques.

INLAND FISHERIES DIVISION

The Inland Fisheries Division manages fish populations and habitats for the conservation and improvement of sport and commercial fishing primarily in freshwater areas of the state. Division responsibilities are divided into two major categories: Fisheries Management and Aquatic Habitat Management.

FISHERIES MANAGEMENT

Lake Management

Fisheries managers estimate relative abundance, size, class structure, and species composition of fish population and physiochemical characteristics of the water in approximately 60 lakes and streams annually. All lakes are sampled in a similar manner so that data can be compared. Sampling techniques include:

Electrofishing samples are taken in the spring and fall to provide a measure of abundance. Only largemouth bass and crappie are collected in the spring while all species are collected in the fall. Standard sampling time is 900 seconds per station.

Gill net samples are taken during winter primarily to determine relative abundance and length frequencies of gizzard shad, striped bass , hybrid striped bass, commercial and rough fish species. Monofilament nets with meshes from 2.5 to 4.0 inches (bar mesh) are set at dusk and gathered at sunrise. Each fish taken is identified, weighed and measured. This sampling method provides gear selectivity, species composition, and length frequency information.

Shoreline seine sampling measures reproductive success of the sunfishes including bass and bluegill. Year-class strength, species composition and prey availability are provided by this sampling effort. Samples are conducted during spring and summer and consist of one quadrant haul at each sample site using a 25-foot by six foot seine.

Frame nets are used to measure relative abundance and length-frequencies of crappie and other sunfish. Species composition, age and growth and length weight relationships are determined. Sampling is conducted for a minimum of 48 hours with two nets at each station.

Water quality samples are taken at all sampling stations. Water temperature, pH, dissolved oxygen concentration, conductivity, oxidation/reduction potential and water body depth are measured.

Creel samples were conducted on 2 water bodies. This sampling method puts the fisheries manager in direct contact with the fishermen. Information collected includes species sought and species caught,distance traveled, time fished, number caught and released, and a measurement of all fish harvested.

Species of special concern, such as, paddlefish, and sturgeon are monitored by the Division. The Division continues to collect baseline data on relative abundance, habitat requirements, movements and population estimates.

Paddlefish were again artificially propagated and approximately 54,000 fingerlings and 770,000 fry were stocked in Louisiana waters. All fingerling paddlefish stocked were implanted with coded wire tags before release. Sturgeon movement, age and growth, habitat assessment and population estimates were continued in 1998-99 .

Freshwater fish kills are investigated by Division

biologist. Area impacted and losses are recorded at each kill. Approximately 38 kills were worked this year, For the first time, the Department documented fish kills caused by a largemouth bass virus. A largemouth bass fish kill occurred in the Atchafalaya Basin over an extended period in the fall months. This initiated an investigation to look for the largemouth bass virus in other water bodies. This research will continue next year.

Fish stocking when used as part of a complete fishery management program , can enhance and supplement a fishery and add to the success and enjoyment of fishing. Fish stocking programs must be well thought out and consider many important factors, most important of which is habitat management.

1999 - STOCKING

WATERBODY	SPECIES	NUMBER
John R. Kelly Lake	FLMB - Fry	124,500
	FLMB – Finglerling	131,132
	CCF – Fingerling	24,185
Black Bayou L. (Bossier)	FLMB - Fingerling	42,000
Caddo Lake	FLMB – Fingerling	138,375
Lake Bistineau	FLMB – Fingerling	172,330
	HYSTR – Fingerling	93,639
Lake Claiborne	FLMB – Fingerling	68,222
	HYSTR – Fingerling	68,215
	CCF – Fingerling	11,000
	BCF – Fingerling	8,018
Corney Lake	CCF- Fingerling	14,129
Mill Creek Lake	CCF – Fingerling	7,936
Kepler Lake	CCF – Fingerling	8,058
Caney Lake	FLMB – Fingerling	234,166
D'Arbonne Lake	FLMB – Fingerling	140,728
Poverty Point	FLMB – Fry	100,500
Ouachita River	STR – Fingerling	300,343
Kiroli Park Lake	CCF – Fingerling	1,150
Ruston City Park	CCF – Fingerling	713
Chatham Lake	CCF – Fingerling	9,982
B. Bartholomew Lake	AGAR – Fingerling	10,000
Rodemacher Lake	FLMB – Fingerling	157,290
Saline Lake	FLMB – Fry	84,000
	FLMB – Fingerling	48,808
	CCF – Fingerling	11,109
Kincaid Lake	FLMB – Fingerling	20,820
	FFC – Fingerling	9,361
Toledo Bend	FLMB – Fry	51,500
	STR – Fingerling	289,304
	PDDLF – Fingerling	695
Cotile	FLMB – Fingerling	21,674
	CCF – Fingerling	5,112
Buhlow Lake	BCF – Adult	122
Sabine River	PDDLF – Fingerling	19,449
Concordia Lake	FLMB – Fry	100,000
	FLMB – Fingerling	120,756
Lake Louis	FLMB – Fingerling	19,979
Lake Bruin	FLMB – Fingerling	31,615
	HYSTR – Fingerling	28,966

Lake St. John	FLMB – Fingerling	21,614
	HYSTR – Fingerling	17,754
Turkey Creek	CCF – Fingerling	5,625
	BCF – Fingerling	15,300
Lake St. Joseph	FLMB – Fingerling	19,979
	BLG – Fingerling	85,500
Mississippi River	PDDLF – Fingerling	5,630
Vernon Lake	FLMB – Fingerling	200,290
Lacassine NWR	FLMB – Fingerling	78,624
Mermentau River	PDDLF – Fry	770,240
	PDDLF – Fingerling	7,822
Anacoco	BLG – Fingerling	73,376
Sabine NWR	FLMB – Fingerling	88,814
Rockefeller Refuge	FLMB – Fingerling	66,231
	STR – Fingerling	6,396
Calcasieu River	STR – Fingerling	16,520
Chicot Lake	FLMB – Fry	71,000
	FLMB – Fingerling	81,872
	CCF – Fingerling	6,303
	BCF – Fingerling	6,365
	BLG – Fingerling	2,120
Spring Bayou	FLMB – Fingerling	25,156
	CCF – Fingerling	13,096
	BCF – Fingerling	8,128
	BLG – Fingerling	9,225
Bayou Teche (Breaux Bridge)	FLMB – Fingerling	10,204
False River	FLMB – Fingerling	33,506
	HYSTR – Fingerling	32,253
University Lake	FLMB – Fingerling	1,503
	BCF – Fingerling	5,000
Amite River	FLMB – Fingerling	16,772
Blind River	FLMB – Fingerling	12,043
Tickfaw River	FLMB – Fingerling	22,899
Tchefuncta River	STR – Fingerling	5,670
Tangipahoa River	FLMB – Fingerling	12,043
Caenarvon	FLMB – Fry	300,000
	FLMB – Fingerling	260,956
The Pen	FLMB – Fingerling	184,930
City Park (New Orleans)	FLMB – Yearling	2,594
Tchefuncta River	STR – Fingerling	5,670
Spanish Lake	FLMB – Fry	124,000
	FLMB – Fingerling	99,252
Atachfalaya Basin	FLMB – Fingerling	112,904
	PDDLF – Fingerling	20,010
	Total	**5,689,400**

Florida Largemouth Bass:	3,655,581 (955,500 fry and 2,700,081 fingerlings)
Striped Bass:	618,233 fingerlings
Hybrid Striped Bass:	240,827 fingerlings
Channel Catfish:	127,759 fingerlings
Blue Catfish:	42,933 (42,811 fingerlings and 122 adults)
Paddlefish:	823,846 (770 240 fry and 53,606 fingerlings)
Aligator Gar:	10,000 fingerlings
Bluegill:	170,221 fingerlings

Fish Abbreviations:

FLMB – Florida Largemouth Bass
AGAR – Alligator Gar
HYSTR – Hybrid Striped Bass
BLG – Bluegill
STR – Striped Bass
BCF – Blue Catfish
CCF – Channel Catfish

Aquatic Habitat Management

Aquatic Plant Control Program

During fiscal year 1998/99, the aquatic plant control program provided substantial benefits to millions of Louisianians. Responsibilities included monitoring water bodies for non-native, invasive vegetation, providing technical assistance, and continuous investigation into more effective and environmentally safe methods of vegetation control. Aggressive treatment of affected waters continued this fiscal year in an effort to restore and improve the aquatic habitat and the natural desirable balance of plants and fish by controlling nuisance plants and to provide easy access for the boater.

Twenty-eight (28) lakes were type-mapped by personnel conducting water monitoring work to determine and evaluate the status of aquatic weed infestations, primarily submersed, in these lakes. Species composition and density were determined on five (5) lakes. As a result of these investigations, management recommendations were made for one (1) lake which underwent drawdown procedures.

Biologists provided advice and technical assistance to private and municipal pond owners on aquatic vegetation management problems. This popular extension program also provides aquatic plant identification assistance for the public on request.

Ongoing research projects of the Aquatic Plant Control Program include evaluation of new herbicides to determine their availability and effectiveness for use in aquatic weed control and investigations into the affects of environmental conditions and water fluctuations on hydrilla, as well as evaluations of chemical, biological and mechanical methods of its control.

Water Hyacinth Control

Crews utilizing boats, airboats, mudboats and roadside spray units effectively applied herbicide to 27,824 acres of Louisiana's freshwater wetlands infested with water hyacinths. Another 5,800 acres were treated by helicopter for a total of 33,624 acres.

During the year, limited applications of specialized herbicides were used to relieve unusual and severe infestations of aquatic weeds in Bayou Desiard, Blind River, Lake Martin, Black Lake/Clear Lake and other areas. These applications were temporary for boating access and habitat improvement measures and served to familiarize local residents with safe and effective use of aquatic herbicides.

Hydrilla Control

Hydrilla (Hydrilla verticillata), an invasive exotic submersed aquatic plant that was discovered in Louisiana in 1973, is now spreading into many areas of the state with the potential of becoming a more serious and expensive pest than the water hyacinth.

In June 1990, the Department initiated a herbicide application program in an effort to eradicate hydrilla from Caney Creek Reservoir, a 5,000-acre impoundment in Jackson Parish. After expenditures in excess of $200,000 for herbicide control with unsatisfactory results, and noting the infestation increasing from 43 acres to 1500 acres in just over 3 years, biologists recommended stocking triploid grass carp. During the 1993-94 fiscal year, eight fish per vegetated acre (11,968) were stocked in Caney Creek Reservoir. A September 1997 survey revealed approximately 8.5 percent vegetation coverage. Fish Section personnel preferred at least

15 percent coverage. The decision to implement a grass carp removal program was approved by the Division administrator. This removal program is continuing at this time.

In the early 1990s, Lake Rodemacher was surveyed and a stocking recommendation developed for the utilization of triploid grass carp to control 1500 acres of hydrilla. In March 1993, ten triploid grass carp (15,000) per vegetated acre were stocked into this 3,000 acre cooling reservoir located in Rapides Parish and owned by Central Louisiana Electric Company (CLECO). Because of concerns by CLECO officials that the hydrilla could clog the cooling water intakes, the lake was stocked with 8100 more grass carp in November 1994 and an additional 9250 in October 1995.

Caney Creek Reservoir and Lake Rodemacher were part of a federally funded five-year project to determine the effects of vegetation removal by triploid grass carp. The final report for that project is now being prepared.

Biologists have previously investigated and verified reports of hydrilla infestations in numerous other waterbodies statewide. In cooperation with personnel of the U.S. Army Corps of Engineers, a close watch was kept on the density, environmental impact and rate of spread of these introductions in Louisiana waters.

In April of 1997, a herbicide application was made in Lake Martin to reduce the infestation of hydrilla prior to stocking with triploid grass carp. In October 1997, 1600 triploid grass carp were stocked. By the spring of 1998, the hydrilla infestation was at its previous level. Another herbicide application was made in May 1998 and another 1600 triploid grass carp were stocked in November 1998. At present there are only a few sprigs of hydrilla remaining in Lake Martin.

The Prairie portion of Black Lake/Clear Lake was treated with herbicide in the spring of 1999 in order to control the spread of hydrilla in that lake. Another application is scheduled for the spring of 2000.

Salvinia

Another more recent invasive exotic introduction is salvinia. There now are two species of this aquatic plant in the state. Common salvinia (Salvinia minima) has been in the state since 1980 and is rapidly spreading throughout the state. Giant salvinia (S. molesta) was discovered in Toledo Bend Reservoir in the summer of 1998. It is thought to have been introduced by the water garden trade. Approximately 200 acres of giant salvinia have been effectively treated in Toledo Bend thus far. Giant salvinia has been discovered in private waters as well. A severe infestation in a pond in Houma is being treated with herbicide. A lighter infestation in a small pond in the Duson area was stocked with grass carp to determine if these fish can control this plant in ponds.

Public Access and Boating Facilities.

The objective of this project is to develop and maintain boating and fishing facilities that provide access to Louisiana waters. The program is largely funded by the federal Sport Fish Restoration Fund, made available through the Wallop/Breaux Amendment of 1986. By law, a minimum of 12.5 percent of the Sport Fish Restoration Fund allotted to Louisiana each year must be spent on boating access to fresh and salt waters. Local municipalities provide match for projects in their areas. Consequently, very few dollars must be drawn from the Department's operating fund. Facilities include boat ramps, fishing piers, and water control structures which manage the hydrology of aquatic habitat. Since 1986, the Inland Fisheries Division has enrolled 73 projects under the program. A total of 65 structures have been completed. One structure was under construction this fiscal year, and planning was continued on two others. An additional 60 boat ramps are routinely inspected and maintained.

Public Access Facilities for Boating and Fishing
Completed 1998-1999
Larto/Saline Stump Removal
Calcasieu Channel Jetty Pier

Public Access Facilities for Boating and Fishing in
Planning Stage 1998-1999

Fort Pike Boat Launch
Madisonville Boat Harbor
Main Street Boat Launch
Franklin Boat Launch
Grand Chenier Boat Launch
Berwick Boat Launch, Phase II
North Bend Boat Launch
South Shore Harbor Improvements

Public Access Facilities for Boating and Fishing Completed Prior to 1998-1999

Spanish Lake Renovation
City Park Lakes Renovation
Toledo Bend Fishing Pier
Grand Isle Fishing Pier
Reserve Boat Launch
Morgan City Fishing Wharf
Attakapas Boat Launch
Bayou Vermilion Launch
Lake Dautrieve Launch
Mandeville Harbor Launch
Cotile Lake Launch
Belle River Landing Launch
Bayou Benoit Boat Launch
Krotz Springs Launch
Cross Lake Launch
Bayou Bonne Idee Launch
Clovelly Canal Boat Launch
Caddo Lake Piers
Iatt Lake Boat Landing
Buhlow Lake Landing
Cotile Lake Channel Buoys
Lake Palourde Marina
Bonnet Carre Spillway Launch
Schooner Bayou Canal Boat Launch
Grand Bayou Reservoir Boat Launch
Sutton Lake Launch
Toledo Bend Boat Lanes, Phase I
Freshwater Bayou Boat Launch
Bayou Pigion Boat Launch
Upper Grand River Dock
Bayou Sorrel Dock
Toledo Bend Phase II Channel Clearing
Toledo Bend Boat Lanes, Phase III
Madisonville Boat Launch
Lake Boeuf Boat Launch
False River Boat Launch
Indian Creek Channel Marking
Bayou DeSiard Boat Launch
Quintana Landing Renovation — Phase II
Golden Meadow Boat Launch
Bayou Teche Fishing Pier
Jack Miller's Landing Launch
Vernon Lake Channel Clearing and Marking
Lockport Boat Launch
Lac Des Allemands Boat Launch
Leighton Boat Launch
Riverside Drive Boat Launch
Frenier Boat Launch
Bayou Bonfouca Boat Launch
Berwick Boat Launch
City of Crowley Boat Launch
Sabine River N. Boat Launch
North Park Boat Launch
Kincaid Reservoir channel Marking
Chicot Lake Fishing Pier
Mandeville Harbor, Phase II
Reserve Boat Launch
Golden Meadow Boat Launch
Grand Isle Fishing Pier
Morgan City Fishing Wharf
Toledo Bend Fishing Pier